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SPECIAL ARTICLES.

ON THE NEED OF A RADICAL REFORM IN OUR METHODS OF TEACHING SENIOR STUDENTS.

BY WILLIAM OSLER, M.D.,
OF BALTIMORE, MD.,

PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY.

MOTTO.—"The Hospital is the only proper college in which to rear a true disciple of Æsculapius."

—ABERNETHY.

My text is taken from the report of the Examining Board to the Surgeon-General of the Army, which received wide publicity last spring. *Of 87 candidates, graduates from medical schools, only 18 were accepted.* On further analysis of these figures it is found that 21 were physically disqualified and 48 withdrew or were rejected. Taking the figures for the years 1901 and 1902, kindly furnished by Surgeon-General O'Reilly, of 333 candidates, 101 were physically disqualified, 165 withdrew or were rejected (96 rejected), and only 67 were accepted. The percentage of rejections during the two examinations of this year is somewhat higher than that of the two previous examinations.

From the standpoint of practical medicine and surgery, the examiners for the Army and Navy constitute the only independent boards of judges of the quality of our work as teachers. The examination is largely practical, and I am told that the failure is chiefly in this part of the test. The figures justify, I think, the somewhat sweeping title which I have chosen for my paper. The examinations of the State Boards are still theoretical and the results cannot be taken as a safe indication of the character of our work.

I.

The last quarter of the last century saw many remarkable changes and reformations, among which in far-reaching general importance not one is to be compared with the reform, or rather revolution, in the teaching of the science and art of medicine. Whether the conscience of the professors at last awoke, felt the pricking of remorse, or whether the change, as is most likely, was only part of that larger movement toward larger events in the midst of which we are to-day, need not be here discussed. The improvement has been in three directions: in demanding of the student a better general education; in lengthening the period of professional study; and in the substitution of laboratories for lecture rooms, in the replacement of theoretical by practical teaching. The problem before us as teachers may be very briefly stated: to give to our students

an education of such a character that they can become sensible practitioners—the destiny of seven-eighths of them. Toward this end are all our endowments, our multiplying laboratories, our complicated curricula, our palatial buildings. In the four years' course a division is very properly made between the preparatory or scientific branches and the practical; the one taught in the school or college, the other in the hospital. Not that there is any essential difference; there may be as much science taught in a course of surgery as in a course of embryology. The special growth of the medical school in the past 25 years has been in the direction of the practical teaching of science. Everywhere the lectures have been supplemented or replaced by prolonged practical courses, and instead of a single laboratory devoted to anatomy, there are now laboratories of physiology, of physiological chemistry, of pathology, of pharmacology, and of hygiene. Apart from the more attractive mode of presentation and the more useful character of the knowledge obtained in this way, the student learns to use the instruments of precision, gets a mental training of incalculable value, and perhaps catches some measure of the scientific spirit. The main point is that he has no longer a lecture-room, theoretical knowledge, but a first hand practical acquaintance with the things themselves. He not only has dissected the sympathetic system, but he has set up a kymograph and can take a blood pressure observation, he has personally studied the action of digitalis, of chloroform and of ether, he has made his own culture media and he has "plated" organisms. The young fellow who is sent on to us in his third year is nowadays a fairly well-trained man and in a position to begin his life's work in those larger laboratories, private and public, which nature fills with her mistakes and experiments.

How can we make the work of the student in the third and fourth year as practical as it is in his first and second? I assume that it is not; my text allows it. I take it for granted we all feel that it should be. The answer is, take him from the lecture-room, take him from the amphitheatre, —put him in the out-patient department—put him in the wards. It is not the systematic lecture, not the amphitheatre clinic, not even the ward class—all of which have their value—in which the reformation is needed, but in the whole relationship of the senior student to the hospital. In the laboratories during the first two years, he is thoroughly at home, domiciled with his place in each one at which he can go and work quietly under a tutor's direction and guidance. To parallel this condition in the third and fourth years certain reforms are necessary. First, in the conception of how the art of medicine and surgery can be taught. My firm conviction is

¹ This quotation is from an interesting lecture by John W. Francis (an old pupil of Abernethy), at Bellevue Hospital, 1898.

that we should start the senior student at once on his road of life. Ask any physician of 20 years' standing how he has become proficient in his art, and he will reply, by constant contact with disease; and he will add that the medicine he learned in the school was totally different from the medicine he learned at the bedside. The graduate of a quarter of a century ago went out with little practical knowledge, which increased only as his practice increased. In what may be called the natural method of teaching the student begins with the patient, continues with the patient, and ends his studies with the patient, using books and lectures as tools, as means to an end. The student starts, in fact, as a practitioner, as an observer of disordered machines, with the structure and orderly functions of which he is perfectly familiar. Teach him how to observe, give him plenty of facts to observe and the lessons will come out of the facts themselves. For the junior student in medicine and surgery it is a safe rule to have no teaching without a patient for a text, and the best teaching is that taught by the patient himself. The whole art of medicine is in observation, as the old motto goes, but to educate the eye to see, the ear to hear and the finger to feel takes time, and to make a beginning, to start a man on the right path, is all that we can do. We expect too much of the student and we try to teach him too much. Give him good methods and a proper point of view, and all other things will be added, as his experience grows.

The second, and what is the most important reform, is in the hospital itself. In the interests of the medical student, of the profession and of the public at large we must ask from the hospital authorities much greater facilities than are at present enjoyed, at least by the students of a majority of the medical schools. The work of the third and fourth year should be taken out of the medical school entirely and transferred to the hospital, which, as Abernethy remarks in the motto (at the head of this article), which I have chosen is the proper college for the medical student, in his last years at least. An extraordinary difficulty here presents itself. While there are institutions in which the students have all the privileges to be desired, there are others in which they are admitted by side entrances to the amphitheatre of the hospital, while from too many the students are barred as hurtful to the best interests of the patients. The work of an institution in which there is no teaching is rarely first class. There is not that keen interest, nor the thorough study of the cases, nor amid the exigencies of the busy life is the hospital physician able to escape clinical slovenliness unless he teaches and in turn is taught by assistants and students. It is, I think, safe to say that in a hospital with students in the wards the patients are more carefully looked after, their diseases are more fully studied and fewer mistakes made. The larger question, of the extended usefulness of the hospital in promoting the diffusion of medical and surgical knowledge, I cannot here consider.

The objection often raised that patients do not like to have students in the wards is entirely fanciful. In my experience it is just the reverse. On this point I can claim to speak with some authority, having served as a hospital physician for more than 25 years, and having taught chiefly in the wards. With the exercise of ordinary discretion and if one is actuated by kindly feelings toward the patients, there is rarely any difficulty. In the present state of medicine it is very difficult to carry on the work of a first-class hospital without the help of students. We ask far too much of the resident physicians, whose number has not increased in proportion to the enormous increase in the amount of work thrust upon them, and much of the routine work can be perfectly well done by senior students.

II.

How, practically, can this be carried into effect? Let us take the third year students first. A class of 100 students may be divided into 10 sections, each of which may be called a clinical unit, which should be in charge of one instructor. Let us follow the course of such a unit through the day. On Mondays, Wednesdays and Fridays at 9 A.M. elementary instruction in physical diagnosis. From 10 to 12 A.M. practical instruction in the out-patient department. This may consist in part in seeing the cases in a routine way in receiving instruction how to take histories, and in becoming familiar with the ordinary aspect of disease as seen in a medical out-clinic. At 12 o'clock a senior teacher could meet four, or even five, of the units, dealing more systematically with special cases. The entire morning, or, where it is customary to have the hospital practice in the afternoon, a large part of the afternoon, two or three hours at least, should be spent in the out-patient department. No short six weeks' course, but each clinical unit throughout the session should as a routine see out-patient practice under skilled direction. Very soon these students are able to take histories, have learned how to examine the cases, and the out-patient records gradually become of some value. Of course all of this means abundance of clinical material, proper space in the out-patient department for teaching, sufficient apparatus and young men who are able and willing to undertake the work.

On the alternate days, Tuesdays, Thursdays and Saturdays, the clinical unit (which we are following) is in the surgical out-patient department, seeing minor surgery, learning how to bandage, to give ether and helping in all the interesting work of a surgical dispensary. Groups of three or four units should be in charge of a demonstrator of morbid anatomy, who would take them to postmortems, the individual men doing the work, and one day in the week all the units could attend the morbid anatomy demonstration of the professor of pathology. I take it for granted that the student has got so far that he has finished his pathological histology in his second

year, which is the case in the more advanced schools.

Other hours of the day for the third year could be devoted to the teaching of obstetrics, materia medica, therapeutics, hygiene and clinical microscopy. At the end of the session in a well conducted school the third-year student is really a very well-informed fellow. He knows the difference between Pott's disease and Pott's fracture; he can readily feel an enlarged spleen, and he knows the difference between Charcot's crystals and Charcot's joint.*

In the fourth year I would still maintain the clinical unit of 10 men, whose work would be transferred from the out-patient department to the wards. Each man should be allowed to serve for at least half of the session in the medical wards and half in the surgical wards. He should be assigned four or five beds. He has had experience enough in his third year to enable him to take the history of the new cases, which would need, of course, supervision or correction by the senior house officer or attending physician. Under the supervision of the house physician he does all of the work connected with his own patients; analysis of the urine, etc., and takes the daily record as dictated by the attending physician. One or two of the clinical units are taken round the wards three or four times in the week by one of the teachers for a couple of hours, the cases commented upon, the students asked questions and the groups made familiar with the progress of the cases. In this way the student gets a familiarity with disease, a practical knowledge of clinical methods and a practical knowledge of how to treat disease. With equal advantage the same plan can be followed in the surgical wards and in the obstetrical and gynecological departments.

An old method, it is the only method by which medicine and surgery can be taught properly, as it is the identical manner in which the physician is himself taught when he gets into practice. The radical reform needed is in the introduction of the system of clinical clerks and surgical dressers, who should be just as much a part of the machinery of the wards as the nurses or the house physicians.

There is no scarcity of material; contrariwise. Think of the plethora of patients in this city, the large majority of whom are never seen, not to say touched, by a medical student! Think of the hundreds of typhoid fever patients, the daily course of whose disease is never watched or studied by our pupils! of the hundreds of cases of pneumonia which will enter the hospitals during the next three months, how few will be seen daily, hourly, in the wards by the fourth year men! And yet this is what they are in the medical school for, just as much as, more indeed, than they are in it to learn the physiology of the liver or the anatomy of the hip-joint.

But, you may ask, how does such a plan work in practice? From a long experience I can answer admirably! It has been adopted in the Johns Hopkins Medical School, of which the hospital, by the terms of the founder's will, is an essential part. There is nothing special in our material, our wards are not any better than those in other first-class hospitals but a distinctive feature is that greater provision is made for teaching of students and perhaps for the study of disease. Let me tell you in a few words just how the work is conducted. The third year students are taught medicine:

First, in a systematic course of physical diagnosis conducted by Drs. Thayer and Fletcher, the Associate Professors of Medicine, in the rooms adjacent to the out-patient department. In the second half of the year, after receiving instruction in history-taking, the students take notes and examine out-patients.

Secondly, three days in the week at the conclusion of the out-patient hours, the entire class meets the teacher in an adjacent room, and the students are taught how to examine and study patients. It is remarkable how many interesting cases can be shown in the course of a year in this way. Each student who takes a case is expected to report upon and "keep track" of it, and is questioned with reference to its progress. The opportunity is taken to teach the student how to look up questions in the literature by setting subjects upon which to report in connection with the cases they have seen. A class of 50 can be dealt with very conveniently in this manner.

Thirdly, the clinical microscopy class. The clinical laboratory is part of the hospital equipment. It is in charge of a senior assistant, who is one of the resident officers of the hospital. There is room in it for about one hundred students on two floors, each man having his own work-table and locker and a place in which he can have his own specimens and work at odd hours. The course is a systematic one, given throughout the session, from two hours to two hours and a half twice a week, and consists of routine instruction in the methods of examining the blood and secretions, the gastric contents, urine, etc. This can be made a most invaluable course, enabling the student to continue the microscopic work which he has had in his first and second years, and he familiarizes himself with the use of a valuable instrument, which becomes in this way a clinical tool and not a mere toy. The clinical laboratory in the medical school should be connected with the hospital, of which it is an essential part. Nowadays the microscopical, bacteriological and chemical work of the wards demands skilled labor, and the house physicians, as well as the students need the help and supervision of experts in clinical chemistry and bacteriology, who should form part of the resident staff of the institution.

Fourthly, the general medical clinic. One day in the week, in the amphitheater, a clinic is held for the third and fourth year students and the more interesting cases in the wards are brought

* The question of the methods of teaching of Physical Diagnosis has been dealt with recently by my associate, Professor W. S. Thayer.—Boston Medical and Surgical Journal, 1902, II.

before them. As far as possible we present the diseases of the seasons, and in the autumn special attention is given to malarial and typhoid fever, and later in the winter to pneumonia. Committees are appointed to report on every case of pneumonia and the complications of typhoid fever. There are no systematic lectures, but in the physical diagnosis classes there are set recitations, and in what I call the observation class in the dispensary held three times a week, general statements are often made concerning the diseases under consideration.

Fourth Year Ward Work.—The class is divided into three groups (one in medicine one in surgery and one in obstetrics and gynecology) which serve as clinical clerks and surgical dressers. In medicine each student has five beds. He takes the notes of the new cases as they come in, does the urine and blood work and helps the house physician in the general care of the patients. From nine to eleven the visit is made with the clinical clerks, and systematic instruction is given. The interesting cases are seen and new cases are studied and the students questioned with reference to the symptoms and nature of the disease and the course of treatment. What I wish to emphasize is that this method of teaching is not a ward-class in which a group of students is taken into the ward and a case or two demonstrated; it is *ward-work*, the students themselves taking their share in the work of the hospital, just as much as the attending physician, the interne or the nurse. Moreover, it is not an occasional thing. His work in medicine for the three months is his major subject, and the clinical clerks have from nine to twelve for their ward-work, and an hour in the afternoon in which some special questions are dealt with by the senior assistant or by the house physicians.

The Recitation Class.—As there are no regular lectures, to be certain that all of the subjects in medicine are brought before the students in a systematic manner, a recitation class is held once a week upon subjects set beforehand.

The Weekly Clinic in the amphitheatre, in which the clinical clerks take leading parts, as they report upon their cases and read the notes of their cases brought before the class for consideration. Certain important aspects of medicine are constantly kept before this class. Week after week the condition of the typhoid fever cases is discussed, the more interesting cases shown, the complications systematically placed upon the board. A pneumonia committee deals with all the clinical features of this common disease, and a list of the cases is kept on the blackboard, and during a session the students have reports upon 50 or 60 cases, a large majority of which are seen in the clinic by all of them, while the clinical clerks have in the wards an opportunity of studying them daily.

The general impression among the students and the junior teachers is that the system has worked well. There are faults, perhaps more than we see, but I am sure they are not in the

system. Many of the students are doubtless not well informed theoretically on some subjects, as personally I have always been opposed to that base and most pernicious system of educating them with a view to examinations, but even the dullest learn how to examine patients, and get familiar with the changing aspects of the important acute diseases. The pupil handles a sufficient number of cases to get a certain measure of technical skill, and there is ever kept before him the idea that he is not in the hospital to learn everything that is known but to learn how to study disease and how to treat it, or rather, as I prefer to teach, how to treat patients.

III.

A third change is in a reorganization of the medical school. This has been accomplished in the first two years by an extraordinary increase in the laboratory work, which has necessitated an increase in the teaching force, and indeed an entirely new conception of how such subjects as physiology, pharmacology and pathology should be taught. A corresponding reformation is needed in the third and fourth years. Control of ample clinical facilities is as essential to-day, as large, well-endowed laboratories, and the absence of this causes the clinical to lag behind the scientific education. Speaking for the Department of Medicine, I should say that three or four well-equipped medical clinics of 50 to 75 beds each, with out-patient departments under the control of the directors, are required for a school of maximum size, say 800 students. Within the next quarter of a century the larger universities of this country will have their own hospitals in which the problems of nature known as disease will be studied as thoroughly as are those of Geology or Sanscrit. But even with present conditions much may be done. There are hundreds of earnest students, thousands of patients and scores of well-equipped young men willing and anxious to do practical teaching. Too often, as you know full well, "the hungry sheep look up and are not fed," and for the bread of the wards given the stones of the lecture-room and amphitheatre. The dissociation of student and patient is a legacy of the pernicious system of theoretical teaching from which we have escaped in the first and second years.

While the title of this paper may seem very strong and indicate too sweeping a conclusion from comparatively small premises, yet the results of the examination of the Army Board are not the only warrant for the statement, as it is notorious that *ward-work*, in the sense in which I have spoken, is not adopted generally in our systems of teaching. The old method and the true method—the method of Boerhaave, of the elder Rutherford of the Edinburgh School, and of the older men of this city and of Boston and of Philadelphia, the men who had been pupils of John Hunter and of Rutherford and of Saunders—is to make of the hospital a college, in which as clinical clerks and surgical dressers the students

slowly learn for themselves, under skilled direction, the phenomena of disease. It is the true method because it is the natural one, the one by which each physician grows in clinical wisdom after he leaves the school—all others are bastard substitutes.

THE INSTRUCTION OF SENIOR STUDENTS IN MEDICINE.

BY W. GILMAN THOMPSON, M.D.,
OF NEW YORK.

PROFESSOR OF MEDICINE IN THE CORNELL UNIVERSITY MEDICAL
COLLEGE IN NEW YORK CITY.

A RECENT discussion at the New York Academy of Medicine, in which the writer took part, was based upon the subject "The Need of a Radical Reform in the Teaching of Medicine to Senior Students." The questions involved are complex and of fundamental importance to the medical profession and public and a further consideration of them seems desirable. At the meeting above referred to the thesis was maintained by the leading speaker that in the fourth year of the medical curriculum, and, possibly in the third year also, the teaching of medicine should be conducted exclusively at the bedside and in the dispensary, and that didactic lectures should be abandoned. In relinquishing a method of teaching by which the great majority of medical men in this country have been so successfully trained in the past, it is necessary that whatever system is substituted for it should be equally as comprehensive and thorough. It is the opinion of the writer, who has given several years' trial to the system under discussion, that the bedside clinic should not be made *wholly* to replace the clinical and didactic lecture, and further that the true basis of systematic instruction should consist of recitations from standard text-books, illustrated, in so far as possible, by bedside and dispensary cases, supplemented by certain clinical and didactic lectures. The practical difficulties which the writer has recognized in bedside teaching may be summarized as follows:

1. It is manifestly impossible, even with the service of several metropolitan hospitals at command, to thus demonstrate every variety of disease. Many diseases are either not indigenous to this country, or to certain localities. Other diseases vary too much in prevalence with seasonal and other conditions; for example in New York City one cannot demonstrate insolation at the bedside in August when the college is closed for the summer recess; cerebro-spinal meningitis may not happen to prevail at all, typhoid fever varies greatly in intensity in different years, beri-beri or filariasis may be imported about once in a half dozen years, typhus fever is practically extinct, and so is variola, at the time of writing. What are the actual figures based upon experience in such an hospital as the Bellevue having 850 beds? In a standard text-book of medicine under that most important group of all diseases, the infections, 42 are classed in the table of contents. Of these 42 infections only 13, or less than one-third,

can be shown regularly every year in the wards or dispensary; 17, or nearly one-half, cannot be shown because they do not exist in New York; six may possibly be observed once in two or three years; and six more may be shown at another hospital (one for contagious disease only), by exposing several hundred students to the hazard of infection.

2. It is impossible to demonstrate all the symptoms or complications characteristic of any given disease, such as meningitis or tuberculosis, in a single patient, or very often, indeed, in a group of patients. For example, one may treat 50 cases of typhoid fever without meeting with a single case of perforation, or if such a case does occur, it is manifestly impossible to allow even a small bedside section of students to personally examine the patient's abdomen. Sooner or later one must present many phenomena of disease to the student's mind which he can neither directly see, or touch, or hear, and they must be presented in a manner best suited to enable him to retain their recollection and identify them when he does meet with them. Between trying to demonstrate these phenomena upon a patient who does not exhibit them, and the other method of enforcing the lesson from a text-book recitation or a concise didactic lecture, the choice is distinctly in favor of the latter. A youth reared in Nebraska may have a poorer conception of a mountain than if he had rambled over Pike's Peak, yet he may be, and should be so taught as to enable him when he first sees a mountain to recognize it for himself and without necessarily stumbling over the foothills. The doctrine of teaching the student "no disease without a patient to illustrate it" is a *reductio ad absurdum*.

3. There is some danger of bedside teaching becoming too pictorial and hence superficial. The student is presented with a picture-book without adequate text. Moreover, such clinical pictures as he really needs at first should be well-defined composites, not a collection of exceptions to the average (as so many clinical cases are, in actual practice). In other words, he should have certain composite standards of comparison clearly established for him, and not be trusted always to form them himself. In illustration, one of my colleagues tells me of the following experience: A student came before him for examination as an hospital interne, who had received his training at a university school, where bedside teaching has completely superseded other methods. He was asked to describe a typical case of carcinoma of the stomach? Answer: "I have only seen two cases, in Professor X's clinic, one had this symptom, the other that." "But what other symptoms may there be present?" "I did not know there were any."

4. A clinical case may teach too little, or it may teach too much. Granted that the student remembers the case he has seen much better than a composite case of which he has read or heard of in a lecture, he may at a later period overlook the search for most important symp-

toms, because his patient did not present them; or, on the other hand, a case having combined cardiac, pulmonary, renal, hepatic and digestive symptoms, may yield no very distinct impression owing to the very multiplicity of symptoms. Such cases as the latter are frequently observed without doubt, but if shown to the student too early in his course they may be much less clearly defined than by classical text-book descriptions of the several diseases which have united in producing so complex a clinical picture.

5. It is utterly impossible to be more than superficially systematic with exclusive bedside (or dispensary) teaching, even in so large a hospital as that above mentioned. To illustrate: One desires to present a systematic series of cases of diseases of the liver; the cirrhoses are always with us, and so are types of jaundice, but who can produce at command an hepatic abscess, or even syphilis of the liver or a primary carcinoma, and what has become of acute yellow atrophy? Some of these diseases may appear later in the term, but then one is occupied perhaps with cardiac cases, and to present the hepatic cases at that time is to add further confusion to any systematic order. Or, possibly a case of acromegaly is seen at the other end of the ward—shall one forsake the ninety and nine cirrhoses to pursue the one acromegaly? There may not be such another case for three years, and which is better for the student? Besides it is so easy to return to cirrhosis; yet one would not wish the student to regard hypertrophy of the maxillæ and other bones as a symptom of cirrhosis, as he is liable to do in sheer confusion of mind, if shown too many and various cases.

6. It has been claimed that the method of exclusive bedside instruction is the *only* natural method "as employed by Hippocrates," and that the essential difference between student and practitioner is merely a difference in length of time of study, and consequently of experience. But does the practitioner learn solely from what he himself sees at the bedside? Does he not also learn from a well-presented paper, read at a medical meeting (which is the lecture) and the well-conducted discussion (which is practically the recitation), even though no patient be present? In fact, it not rarely happens at a medical society meeting that a patient is presented whom no one troubles to examine, merely because the description of the case as read or recited has been so much more graphic than anything the patient could show.

7. "Bedside teaching" (and with it I would be understood throughout this article as including dispensary teaching by means of ambulatory cases) is most seductive from the teacher's standpoint. Those of us who have tried older methods as well, realize how much more interesting it is for ourselves to spend an hour at the bedside than to stand up and "lecture" for a similar time. There is more opportunity for finding something new and instructive for oneself, and hence it is easier to put enthusiasm into the work. Bedside teaching never acquires the monotony

for the teacher that lectures too often do when repeated for 30 years. Yet who among us of the older medical generation does not recall more than one lecturer whose instruction has made upon him a powerful and lasting impression in the description of disease? To repeat a remark quoted by one of the speakers at the Academy meeting above referred to, "One who does not believe in didactic lectures, certainly never ought to deliver them." Bedside teaching becomes a very different problem in a given institution according to whether there are 40 students to study 200 patients or 200 students to study 40 patients. Not more than 10 students can be profitably taught together in a single bedside section, if each student is to be given opportunity to make those thorough physical examinations for himself which are the chief value of this method. With a larger number of students there are always some who cannot see or hear all they should and whose attention is difficult to hold. Only two can feel the pulse simultaneously, only one can examine the heart, only three or four can study closely the typhoid roseola simultaneously, etc. Meanwhile the others must wait, and, if the clinician does not hold their attention by talking (which interrupts those actually employed), their eyes and minds wander to other things, and the student may say to himself, "Oh, I've seen a case of typhoid fever. I wonder what that is over there in the other corner of the ward." That is very certain to happen if the bedside section numbers 30 or 40 students. On the other hand, with bedside classes of 10 students and a total fourth year class of 200 students, there will be 20 bedside sections to be taught, which involves much repetition of work for the teacher, and what shall one say of the unlucky patient, who day after day must "sit up and take long breaths, please, or count one, two, three" to demonstrate a patch of consolidation of the lung, or who is required to have 200 successive hands grope for the elusive spleen? Of course such things become at once impracticable and the result is the manifest impossibility of showing all the students the same cases, or even groups of cases, and hence of having any real system or uniformity in this method of instruction. One student may derive much more experience from it than another. It is well that these problems should be understood, for "bedside teaching" has become the war-cry of competing institutions throughout the country, and it may, according to circumstances, mean very much or very little to the individual student. The admirable variety of bedside instruction which consists in assigning individual students to the study of particular cases for a period of several weeks, requiring them to make an exhaustive research of each case and report the same in writing is extremely difficult to maintain when a class numbers over 100 students, and the college does not absolutely control the hospital. Students, if allowed too free access to the wards are apt to be indiscreet; they may interrupt the patient's meals, interfere with the nurses' work,

or drive away visitors. Complaints reach the managerial board (which is none too partial to medical education at any time) and privileges for students of access to wards, grudgingly granted originally, are still further curtailed.

I have dwelt thus fully upon the practical details and some of the difficulties involved in bedside teaching, because they are not generally appreciated. Some of them can be overcome by tact and effort, but others are more serious. On the other hand, certain important topics are in no sense subjects for bedside teaching, and these still find their legitimate field for discussion in the didactic lecture. Such, for example, are the important questions of heredity, of immunity, of diatheses in general, etc. Thirty or 40 didactic lectures may be advantageously given upon such topics, together with those of general or comparative symptomatology. Beyond this it is unnecessary to extend the didactic lecture system. The amphitheatre clinic still has a useful function in enabling the teacher to demonstrate general methods of examination of cases, and of differential diagnosis, as well as to stand in the light of a consultant to the more advanced student who has previously carefully prepared the history and record of the case. Many suitable cases may be as well demonstrated to an audience of 200 in the amphitheatre as to 10 at the bedside, and features of etiology, differential diagnosis and treatment can be often better dealt with in this manner, for the larger audience is itself a stimulus to both instructor and students to set forth their best efforts. The real hard work of the student should, however, be expended upon text-book recitations for which he should be held strictly accountable, for in this manner only can he be impressed with an orderly, thorough and complete presentation of the subject of medicine. The recitation system is a true pedagogic method; it is found to be so in the primary school, in the high-school, in the academic college. Through all his early years the student is taught to read, remember and recite. Why abandon this method in the professional school? By no other means can the instructor test so well the daily increment of knowledge of his class, promptly supply deficiencies and correct misapprehensions. By no other means can the student so well test himself, and compare his progress with that of his associates. Bedside teaching and class dispensary teaching he should certainly receive an abundance, but he should not delude himself, as he is so apt to do, by thinking it is a shortcut to knowledge. Let him be taught to *read* and to *study*, not merely to accumulate clinical pictures, or because he has seen a case or two of typhoid fever with his own eyes believe that he knows all about the disease. That is where the danger lies, in the evercrowded curriculum of the four years course. The medical student of 1902 finds himself ground between the upper and the nether millstone. The latter is the laboratory which in increasing number and variety is constantly tending to consume

more and more of the student's energy and time. The former is the specialist who in the enthusiasm of rapidly accumulating data and the elaboration of technic is liable to distort somewhat the symmetrical balance of the curriculum and demand each year for his particular department more and more hours of the already overworked student. Similarly even bedside instruction in medicine may fail of its legitimate object if not very carefully considered. It should be employed to illustrate, in so far as possible, what has been already learned in the text-book and to teach methods of examination and close observation rather than merely to present variety.

The bedside or dispensary teaching should be subdivided so that each student in successive sections should broaden his experience along definite lines. In one section he should be taught the physical diagnosis of the lungs and heart, in another the physical diagnosis of the abdominal organs, or of the pulse, of various cachexias, etc.; in still another he should be made to review in all possible detail a single important case, rather than the comparison of one condition in a number of cases (as in the previous section). Another section should be held for "conference" at which he reads a report of a case which he has studied for several days or weeks consecutively, as if it were his own, the report to be discussed by his associates and instructor. It is increasingly difficult to cover all this ground satisfactorily in the two final years of a four years course, encroached upon as they are by the laboratory and the various "specialties," but a fifth year is not under discussion in this article. Let us avoid the dangers of attempting to teach too much; of training men as specialists before they have mastered the broad foundations of general medicine; of teaching too many data rather than cultivating method, system and the power of observation; of failing to allow the student sufficient time to assimilate what he has ingested, to read, to think, and to *study*—in a word, do not let us plant the seeds of knowledge so closely that they suffocate each other and fail to sprout.

In conclusion I would repeat that in pointing out the difficulties attending the bedside method I have no intention of disparaging it, on the contrary, it is to be cultivated to the fullest extent. Carefully regulated and classified, it should be employed to elucidate rather than supersede a broad foundation laid by reading and recitation, and supplemented by a limited number of didactic and clinical lectures.

Treatment of Lupus Vulgaris.—A 10 per cent. ointment of picric acid, of which the basis is white vaseline, has, in the experience of A. M. GIUSEPPE (Il Policlinico, Nov. 15, 1902) yielded better results in the treatment of lupus vulgaris than any other remedy. The author deems it best to alternate the use of the ointment with boracic acid lavage or dusting with bromphenol powder; as the effect of the picric acid is rather painful; the latter objection can, however, be readily overcome by preliminary application of cocaine, when necessary.

ORIGINAL ARTICLES.

BOILING AS A METHOD OF STERILIZING CATHETERS.

BY

C. B. NANCREDE, M.D.,

AND

W. H. HUTCHINGS, M.D.,

OF ANN ARBOR, MICHIGAN.

A READY, thoroughly reliable method of sterilization of catheters, which the inexpert as well as the expert can use, and which can be adopted for all varieties of catheters without requiring the employment of cumbersome apparatus, or the expenditure of much time, is one of the greatest desiderata in surgery.

None can question that caloric, in sufficient quantity and applied for a proper length of time to each and every germ, is the most certain germicide, although many chemicals will destroy some bacteria and inhibit the growth of others with sufficient certainty to be reliable when proper time and facilities exist for their employment. In our former paper* we demonstrated that all varieties of catheters could be repeatedly boiled for any length of time requisite to secure absolute sterilization, provided proper precautions were taken. In these experiments however, germs cultivated for many generations in the laboratory were employed, and all experimenters recognize that micro-organisms thus treated become less virulent than those of the same species actually obtained from the living tissues of the human or animal body.

In consequence, germs obtained by cultures from actual cases of cystitis, and colon germs taken from cases of appendicitis, etc., were employed with the expected result, viz., that they were more resistant, yet readily destroyed by a longer exposure to heat.

Again, catheters used to irrigate infected bladders and others tied in in cases of cystitis were experimented with. These showed that it is more difficult to sterilize catheters clinically infected than those artificially infected.

The fact that the larger the size of the catheter, the more quickly was heat sterilization effective, led to a most important practical discovery, as is shown in Experiments 84 to 91. These demonstrate that when catheters quickly subside to the bottom of the vessel all or nearly all air is expelled from their lumina, hence all germs are promptly subjected to moist heat, and second, the smaller calibered instruments require a longer time to sterilize because it is more difficult to get all the air out of their interiors. These observations serve to explain the differences in time stated by different observers as requisite for certain sterilization, as well as for discrepancies in our own observations. It has always seemed peculiar that streptococci, staphylococci and the colon bacillus, none of which can withstand boiling

water, still maintained their vitality in some cases in catheters boiled even so long as 20 minutes. This was formerly solely explainable by the assumed imprisonment of germs in dried pus, blood or mucus, so that the moist heat took a longer time than usual to reach them, or where chemical germicides were employed, that these were decomposed or never reached the interior of minute masses of pus, etc., one of the chief objections to chemical sterilization. Air in a catheter will for long periods only permit the exposure of germs to a comparatively low and absolutely inert temperature; and prevents the softening down and penetration of dry pus, blood or mucous by caloric.

The discovery of the fact that even after filling with ordinary tap water, *i.e.*, water which adds additional germs but which expels all air—one-fourth of the time only is requisite to sterilize badly infected catheters, removes the last vestige of objection to boiling by reducing the period requisite. Guyon contends that without preliminary cleansing half an hour's boiling is requisite to obtain sterilization; we have shown that, provided the air be expelled from the interior of the catheter, 10 minutes will invariably suffice with the most seriously infected instrument.

It being in many instances impossible to wait 24 to 48 hours for the formalin disinfection, even if the necessary apparatus were obtainable, it is clear that for emergency work, this method is out of court, while chemical sterilization (see experiments in first paper) requires a prolonged sojourn of the instrument in the solution, which in the case of the English catheter, if repeated frequently, soon destroys the polish of its surface.

As a preliminary to the conclusions warranted by the present paper, it may be well to quote those reached as the result of our first experiments. This is all the more advisable as we refer to them in the final conclusions of our present communication:

1. An infected rubber catheter cannot be completely sterilized by boiling under $4\frac{1}{2}$ minutes (*i.e.*, after artificial infection with attenuated germs).

2. Mechanical cleansing from all dried pus, coagulated blood or mucus will render sterilization easier and will demand a shorter time to be effective.

3. Elastic (English web) catheters and soft rubber catheters can be repeatedly boiled for five or more minutes without roughening of their surfaces or diminution of their elasticity and strength.

4. Chemical sterilization by immersion in a $\frac{1}{2000}$ mercuric chloride solution for five minutes does not sterilize any variety of catheter which has become infected, at best only inhibiting the growth of the germs, for if the mercuric salt be precipitated by ammonium sulphide the germs will grow freely when implanted in culture media, as shown in Experiments 60 to 63.

6. Should corrosive sublimate be employed for

* A Preliminary Note on the Sterilization of Catheters: a Bacteriological Study, C. B. Nancrede and W. H. Hutchings. MEDICAL NEWS, Nov. 23, 1901.

the sterilization of catheters, it must be in a concentrated solution and the catheter must remain in it for a much longer time than the usual period considered amply sufficient in the laboratory, no mere washing with any chemical solution being efficient for an infected instrument.

7. Formalin vapor will sterilize infected instruments in 24 hours (see Experiment 64); how much shorter time will be sufficient we have not as yet determined, but propose to do so in the future.

8. All methods of sterilization commonly employed should be continued for much longer periods than the minimum time required for destruction of germs in the laboratory.

9. English web catheters can apparently be more readily sterilized by heat than can soft rubber catheters, probably on account of their interior construction.

In commenting upon these tentative conclusions, which we believe our experiments warrant us in drawing, we would point out that the germs employed are probably even less resistant to sterilizing agents than are those of the same species actually contaminating catheters which have been employed for cases of cystitis, because of the well-known loss of virulence of germs long cultivated upon artificial media. We propose to remedy this defect in our future experiments by procuring germs from actual cases of cystitis.

Our present conclusions are as follows:

1. Although the washing with warm soap-suds is an absolute prerequisite to most methods of chemical sterilization and is an excellent precaution, in the method of employing caloric we recommend, it is not necessary, as shown by Experiments 84 to 91 where no difference was observed in the time and thoroughness of sterilization when this precaution was omitted, when compared with Experiments 78 to 83 where previous washing was done.

2. One of the chief obstacles in the way of catheter sterilization has always been the oily lubricants. The boiling temperature promptly liquefies the vaseline usually employed, which will be seen floating upon the surface of the fluid mechanically carrying away with it numerous germs mingled or adherent to the cold, semi-solid lubricant.

3. In our first paper we showed that the English catheter was more readily sterilized than the soft-rubber instruments, and what is of greater importance, can be repeatedly boiled without material damage, if proper precautions are taken.

4. Experiment 65 (first paper) shows that the English web catheter can be boiled for any length of time without damage in a saturated solution of ammonium sulphate. As this boils at 104° C. it is superior to plain water, but subsequent washing in sterilized water is requisite to remove the crystals of the salt which are deposited on cooling.

5. The only precautions requisite in boiling English catheters in plain water are those necessary to prevent their coming directly in contact

with the bottom of the vessel in which they are boiled—this can be done by enveloping them in gauze, or a towel.

6. Finally, these numerous experiments incontestably prove, that caloric can be successfully employed for all varieties of catheters with the exception of the soft French instrument, provided all air is expelled from the interior; (2) that this essential having been secured, although in a great majority of cases five minutes immersion in water which is actually boiling will suffice, ten minutes of actual ebullition should be employed, especially for the smaller calibered instruments; and (3) that a previous cleansing with warm soap-suds is desirable although not essential, reducing as it does the time of exposure requisite to sterilize the instruments. As previously stated, the employment of a saturated solution of ammonium sulphate is desirable for English catheters but is not essential and detracts from the simplicity of the method.

EXPERIMENTS.

The lubricant in all cases was vaseline which had been sterilized by heating and placed in collapsible tubes while very hot. Each catheter, after being used in the infected bladder, was placed in a sterilized Petri dish and allowed to become thoroughly dry. It was then removed and subjected to the sterilizing process after which it was placed in bouillon and incubated 24 hours. If no germs were present at the end of this time it was considered sterile. The receptacles used were 14 inch ignition tubes. These will contain the catheter without any kinking, while it can be transferred from the boiling water to the bouillon with less danger of contamination. The bouillon had in all cases been previously incubated 24 hours at 38° C. Controls were made in every experiment.

Experiment 1.—Catheter inoculated with pure culture of colon bacillus, obtained from appendiceal abscess, allowed to dry, after which it was immersed in boiling, sterile water one-half minute. It was then placed in bouillon, incubated at 38° for 24 hours, at the end of which time it was sterile.

Exp. 2.—Catheter treated as in experiment 1, boiled 1 min., Negative.

Exp. 3.—Catheter treated as in experiment 1, boiled $1\frac{1}{2}$ min., Negative.

Exp. 4.—Catheter treated as in experiment 1, boiled 2 min., Negative.

Exp. 5.—Catheter treated as in experiment 1, boiled $2\frac{1}{2}$ min., Positive.

Exp. 6.—Catheter treated as in experiment 1, boiled 3 min., Positive.

Exp. 7.—Catheter treated as in experiment 1, boiled $3\frac{1}{2}$ min., Negative.

Exp. 8.—Catheter treated as in experiment 1, boiled 4 min., Negative.

Exp. 9.—Catheter treated as in experiment 1, boiled $\frac{1}{2}$ min., Positive.

Exp. 10.—Catheter treated as in experiment 1, boiled 1 min., Positive.

Exp. 11.—Catheter treated as in experiment 1, boiled $1\frac{1}{2}$ min., Negative.

- Exp. 12.—Catheter treated as in experiment 1, boiled 2 min., Positive.
- Exp. 13.—Catheter treated as in experiment 1, boiled 2½ min., Positive.
- Exp. 14.—Catheter treated as in experiment 1, boiled 3 min., Negative.
- Exp. 15.—Catheter treated as in experiment 1, boiled 5 min., Positive.
- Exp. 16.—Catheter treated as in experiment 1, boiled 5 min., Positive.
- Exp. 17.—Catheter treated as in experiment 1, boiled 5 min., Positive.
- Exp. 18.—Catheter treated as in experiment 1, boiled 5 min., Positive.
- Exp. 19.—Catheter treated as in experiment 1, boiled 5 min., Negative.
- Exp. 20.—Catheter treated as in experiment 1, boiled 5 min., Negative.
- Exp. 21.—Catheter treated as in experiment 1, boiled 6 min., Negative.
- Exp. 22.—Catheter treated as in experiment 1, boiled 6 min., Negative.
- Exp. 23.—Catheter treated as in experiment 1, boiled 6 min., Negative.
- Exp. 24.—Catheter treated as in experiment 1, boiled 6 min., Negative.
- Exp. 25.—Catheter treated as in experiment 1, boiled 6 min., Negative.
- Exp. 26.—Catheter treated as in experiment 1, boiled 6 min., Negative.
- Exp. 27.—Catheter used to irrigate bladder infected with colon bacillus was allowed to dry, after which it was boiled five minutes, placed in sterile bouillon, incubated at 38° for 24 hours. Result positive.
- Exp. 28.—Catheter treated as in experiment 27, boiled 6 min., Negative.
- Exp. 29.—Catheter treated as in experiment 27, boiled 6 min., Negative.
- Exp. 30.—Catheter treated as in experiment 27, boiled 6 min., Negative.
- Exp. 31.—Catheter treated as in experiment 27, boiled 6 min., Negative.
- Exp. 32.—Catheter treated as in experiment 27, boiled 6 min., Negative.
- Exp. 33.—Catheter treated as in experiment 27, boiled 7 min., Negative.
- Exp. 34.—Catheter treated as in experiment 27, boiled 8 min., Negative.
- Exp. 35.—Catheter treated as in experiment 27, boiled 9 min., Negative.
- Exp. 36.—Catheter treated as in experiment 27, boiled 10 min., Negative.
- Exp. 37.—Catheter treated as in experiment 27, boiled 11 min., Negative.
- Exp. 38.—Catheter treated as in experiment 27, boiled 12 min., Negative.
- Exp. 39.—Catheter used to irrigate bladder, infected with streptococcus pyogenes and colon bacillus. Allowed to dry in sterile dish, after which it was immersed in boiling water 10 minutes, incubated at 38° C. for 24 hours, at the end of which time the result was positive.
- Exp. 40.—Catheter treated as in experiment 39, boiled 10 min., Positive.
- Exp. 41.—Catheter treated as in experiment 39, boiled 10 min., Positive.
- Exp. 42.—Catheter treated as in experiment 39, boiled 10 min., Positive.
- Exp. 43.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 44.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 45.—Catheter treated as in experiment 39, boiled 15 min., Positive.
- Exp. 46.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 47.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 48.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 49.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 50.—Catheter treated as in experiment 39, boiled 15 min., Negative.
- Exp. 51.—Catheter used to irrigate bladder infected with colon bacillus and staphylococcus pyogenes aureus, allowed to dry, immersed in boiling water 10 minutes, after which it was incubated in bouillon at 38° C. for 24 hours, at end of which time it was positive.
- Exp. 52.—Catheter treated as in experiment 51, boiled 10 min., Positive.
- Exp. 53.—Catheter treated as in experiment 51, boiled 10 min., Positive.
- Exp. 54.—Catheter treated as in experiment 51, boiled 10 min., Positive.
- Exp. 55.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 56.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 57.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 58.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 59.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 60.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 61.—Catheter treated as in experiment 51, boiled 15 min., Negative.
- Exp. 62.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 63.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 64.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 65.—Catheter treated as in experiment 51, boiled 20 min., Negative.
- Exp. 66.—Catheter treated as in experiment 51, boiled 20 min., Negative.
- Exp. 67.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 68.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 69.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 70.—Catheter treated as in experiment 51, boiled 20 min., Negative.
- Exp. 71.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 72.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 73.—Catheter treated as in experiment 51, boiled 20 min., Negative.
- Exp. 74.—Catheter treated as in experiment 51, boiled 20 min., Negative.
- Exp. 75.—Catheter treated as in experiment 51, boiled 20 min., Negative.
- Exp. 76.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 77.—Catheter treated as in experiment 51, boiled 20 min., Positive.
- Exp. 78.—Catheter used to irrigate bladder, infected with streptococcus pyogenes and colon bacillus. Was washed thoroughly in a strong soap solution made in

warm sterile water, after which it was boiled five minutes, placed in bouillon and incubated at 38° C. for 24 hours, at the end of which time it was negative.

Exp. 79.—Catheter treated as in experiment 78, boiled 5 min., Negative.

Exp. 80.—Catheter treated as in experiment 78, boiled 5 min., Negative.

Exp. 81.—Catheter treated as in experiment 78, boiled 5 min., Negative.

Exp. 82.—Catheter treated as in experiment 78, boiled 5 min., Negative.

Exp. 83.—Catheter treated as in experiment 78, boiled 5 min., Negative.

Exp. 84.—Catheter used to irrigate bladder, infected with streptococcus pyogenes and colon bacillus, was filled with tap water, care being taken to expel all air from its lumen. No effort was made at mechanical sterilization. The ends were clamped with sterile clamps. It was then immersed in boiling water for five minutes, incubated in bouillon at 38° C. for 24 hours, at the end of which time it was sterile.

Exp. 85.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 86.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 87.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 88.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 89.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 90.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 91.—Catheter treated as in experiment 84, boiled 5 min., Negative.

Exp. 92.—English catheter tied in urethra and bladder of external urethrotomy. Left in place five days, at the end of which time it was removed, dried in sterile dish, boiled five minutes (care being taken to expel all air from its lumen) and incubate at 38° C. in sterile bouillon; at the end of 24 hours there was no growth.

Exp. 93.—Catheter treated as in experiment 92, boiled 10 min., Negative.

Exp. 94.—Catheter treated as in experiment 92, boiled 15 min., Negative.

Exp. 95.—Catheter treated as in experiment 92, boiled 5 min., Negative.

VERATRUM VIRIDE AS AN ANTITOXIC.*

BY A. B. ISHAM, M.D.,
OF CINCINNATI, OHIO.

THE National Medical Dictionary defines an antitoxic as "an antidote," and Webster's as an agent "counteracting poison." The Century Dictionary broadly describes an antidote as a "medicine adapted to counteract the effects of poison or of an attack of disease." And further, "a counteracting power or influence of any kind." With this wide scope the term has been chosen to serve in connection with this paper.

On December 3, 1900, I read a paper, which appeared in the MEDICAL NEWS, March 2, 1901, respecting the administration of "Veratrum Viride in Some Conditions of Toxemia." A more extended use of this drug has confirmed my previous experience as to its efficacy as an antitoxic, until

it has become my firm conviction that, in grave conditions of sepsis, it is one of the most potent remedial agents of the whole materia medica.

The per-orem ingestion of the drug found illustration in a number of instances of appendicitis and peritonitis narrated in the former paper. Since the previous report cases of sepsis following abortion, sepsis as a result of traumatic injuries, cases of pleuro-pneumonia, one case of appendicitis, conditions of the liver and kidneys producing more or less marked signs of toxemia, and toxic poisoning, as manifested by muscular cramps and hives, in all numbering 27 cases, have been successfully dealt with by this method of treatment. It is not intended, however, to present them in detail, or to more than allude to the internal employment of veratrum viride. The general observations upon the behavior of the medicine will cover its action after internal exhibition as well.

In the paper already cited were reported nine cases successfully treated by subcutaneous injections of veratrum viride. We have now to present nine additional cases illustrating the action of this method of application.

Case I. Eclampsia.—Mrs. H., aged thirty-eight years, American. Was called to see her Dec. 3, 1900, at three P.M. She was at term in first pregnancy. Had suffered all day with an excruciating headache, dizziness and double vision. Shortly before I was summoned she had fallen down a flight of five steps and was taken up unconscious. When I reached her she was in a state of unconsciousness, eyes open, staring and crossed, oscillatory convulsive movements of eyeballs, and spasms of muscles of face, arms and legs. There were forcible rolling and upright movements of body without aim, requiring the exercise of great strength to restrain. Urine was scanty and highly albuminous. Gave an injection into the left thigh of 20 drops of Norwood's tincture of veratrum viride, followed in half an hour by 15 drops more. The pulse rate was reduced to 38 beats per minute. Copious sweating, salivation, retching, and vomiting of mucus and bile followed soon after the second injection, together with complete cessation of convulsive movements. By six o'clock there was a full return to consciousness. Complaints of double vision and dizziness. Retching and vomiting ceased by seven o'clock, after which she slept quietly.

The os uteri was dilated an inch, and was soft and dilatable. Slight labor pains every 15 or 20 minutes. At 11 o'clock active labor pains commenced and delivery was accomplished in the natural way at three A.M. She had a normal puerperium and involution.

Case II. Pneumococcus Infection.—G. J., male, aged eighty-two years. Was called to attend him the evening of March 4, 1901. He had spent some time in the forenoon in the chill air of a house, unoccupied for several months. In the evening he had chill and vomiting, followed by a temperature of 103¾° F., difficulty of breathing, short, hacking, restrained cough, and

* Read before the Cincinnati Academy of Medicine, October 20, 1902.

pain at the lower, outer portion of the left lung, with fine crackling sounds. Pulse 108, full and bounding. He was at once given a hypodermic injection 25 drops of Norwood's tincture into the upper anterior portion of the right thigh.

This soon produced copious perspiration, salivation, retching and vomiting of mucus and bile. The pain ceased within 15 minutes. In about three hours the retching and vomiting terminated and the temperature was normal. The pulse fell to 54 per minute. The patient remained in bed the fifth of March, although in all respects normal, but upon the sixth he rose early, and was about the house all day.

Case III. Pulmonary Tuberculosis with Secondary Involvement of Apex of Left Lung.—A. D., female, aged twenty-six years, American. This patient had been under the care of the late Dr. J. T. Whitaker, by whose direction she had spent the winters of 1898-9 and 1899-1900 at El Paso, Texas. She came to me June 8, 1900. There were mucous and blowing murmurs over the entire right lung with increased resonance to percussion over the upper anterior portion. There was cough, rapid respiration, pulse 120, feeble, scanty muco-purulent expectoration with night sweats of moderate severity. The last winter she had not improved at El Paso, in fact, there had been a loss in weight and strength. She had been much confined on account of fever, and had experienced much deprivation from want of proper nourishment. As home conditions were in every way favorable, she was advised against removal for the winter. Accordingly she passed through the cold season very well, losing but a few pounds in weight; had been enabled to ride about very often in the open air, make visits to the city and enjoy the intercourse of friends. The inclement, cloudy weather of March, 1901, however, was inimical to outdoor exposure. She became affected with la grippe, had fever ranging from 100½° F. to 103° F., and profuse night sweats. On April 2, 1901, there were evidences of the apex of the left lung becoming involved, dulness on percussion, fine crepitation, very rapid respiration, temperature of 104½° F. and very considerable pain in coughing over the upper anterior portion of the left chest. At 4.30 P.M. she was given hypodermically, into the upper part of the right arm, 30 drops of Norwood's tincture. As she lived some distance in the country I had to leave immediately to catch a train. Upon reaching home, telephone messages were awaiting me to the effect that the patient was at the point of death, retching and vomiting, was flooded with perspiration, could not see, was pulseless and gasping for breath, but without pain. Assurance was given that she would not succumb, but would remain terribly sick for perhaps two hours longer. A test of temperature made at that time showed it to be normal. She had no more fever for three days and during that time there was a lower pulse range than at any other time during my observation of the case. At the time of injection it escaped observation that the needle was inserted

in proximity to the brachial nerve. This caused a neuritis, swelling and inflammation along the course of the nerve, and very great pain for a period of 24 hours. It subsided by the end of the fourth day, but on account of it I could not secure consent to any more injections. She was, however, placed upon Norwood's tincture, six drops four times daily, internally, which was continued through the summer until her departure for El Paso again in September, 1901, whither she went of her own volition, and where she died last August.

Case IV. Convulsions. Carbolic Acid Poisoning.—K. A., female, aged twenty years. Was summoned in haste to this case at three P.M., May 9, 1901. Found her unconscious with convulsive movements of legs and arms, and transverse vibratory movements of eyeballs. The history obtained was that after a visit to the water-closet she was found lying senseless in the hall at the entrance to her bedroom. Pulse was 132 and feeble, respiration rapid and labored with much mucous accumulation in the throat. Administered hypodermically, 20 drops of Norwood's tincture into the upper portion of the left thigh. No actions apparent in half an hour, injected 15 drops more of the drug. In 15 minutes there was vomiting and retching of mucus and bile. Dr. Joseph Eichberg, under whose care she had been, came into the case about five o'clock. There being a smell of carbolic acid about the fluids ejected, investigation in the bath room revealed a four-ounce bottle of pure carbolic acid exhausted of about one-half its contents. Examination of the mouth and throat showed the soft palate, uvula and pillars of the fauces whitened as though by some caustic substance. At six o'clock pulsations in the radial arteries were extinct, the breathing was stertorous, and the case seemed hopeless. At seven o'clock pulsations in the radials were distinct, 72 per minute, and there were indications of returning consciousness in the opening of the eyelids in obedience to loudly repeated commands. By eight o'clock consciousness was well restored, and questions were answered intelligently. It was found that as much as two ounces of pure carbolic acid had been taken with suicidal intent. Complete recovery ensued. During the time she was under the influence of the poison the veratrum viride procured the evacuation of more than two quarts of bile and mucus. Without its aid there should unquestionably have been a fatal result. There was not the slightest action of the medicine upon the skin. It was all expended upon the internal glands.

Case V. Contracted Kidneys. Uremia.—Mrs F., aged fifty-five years, American. During January and February, 1901, was under treatment for giddiness, headache, nausea, pain in the back, sleeplessness and constipation. The urine was scanty, only two to four ounces being secreted in 24 hours. Examined chemically and microscopically it exhibited no abnormality. The heart's action was irregular and intermittent, 48 beats to

the minute. The sounds were clear and without murmur. By the use of calomel, digitalis, diuretin, potassium, bitartrate, pulv. jalap comp., infusion of juniper berries and watermelon seeds, together with the free ingestion of Geneva water, the secretion of urine was increased to one pint daily. With this the heart's action became normal, and all the other symptoms abated. The patient thought herself well and left off treatment. The diagnosis was contracted kidneys, and no doubt was entertained that she should be heard from again. Accordingly, the eleventh of May the call came. There had been entire suppression of urine for 24 hours. Catheterization was not permitted, but it was evident from the flatness over the bladder, that there was no accumulation in that organ. Temperature was normal, pulse 72, regular and of good force. There was excruciating headache and pain in the back, nausea, double vision, fixed objects appeared dancing about, and the bed floated in space. Thirty drops of Norwood's tincture were at once injected hypodermically into the upper portion of the left thigh. There was no action whatever upon the skin, but the husband estimated that she must have ejected one gallon of bile and mucous during the three hours that the vomiting and retching lasted, after which about four hours of quiet sleep was enjoyed. Under the influence of the drug the pulse declined to 42 beats per minute. In the morning the symptoms were much abated. Four ounces of urine were passed which was normal to tests. She was placed upon six drops of Norwood's tincture after meals and upon retiring, was to drink freely of Eden Park spring water, to have 20 grains of compound jalap powder three times daily, and a vapor bath every evening. Under this treatment, while she has never passed more than 12 ounces of urine in 24 hours, she has been enabled to attend to her ordinary vocations, and to enjoy what she considers a comfortable state of existence.

Case VI. Gall-Stone Colic (?) Hypochondria.—H. M., aged sixty years, American. Has been troubled for years with a feeling of fulness about the stomach, most pronounced about an hour and a half after meals, when it becomes decidedly uncomfortable to himself and all in close association with him. Has had a number of attacks of severe pain, over the stomach and liver, coming on in the night, treated by various physicians with morphine hypodermically. Seizures were pronounced by different physicians to be biliary colic. Careful examination was never successful in finding gall-stones, nor was there ever any jaundice in connection with the attacks. For the last seven or eight years he has been losing money in his business, and has never been free from mental worry. Has imagined he had heart disease, the commencement of grave lesions of the central nervous system, tuberculosis or cancer of the digestive organs. About midnight of June 17, 1901, found him rolling about upon the bed apparently in great agony, with hands clasped over his epigastrium. Pulse 72, irregular and inter-

mittent. Temperature normal. Abdomen tympanitic. Gave 30 drops of Norwood's tincture by hypodermic injection into the left thigh. In 15 minutes the pain disappeared. Free retching and vomiting of bile and mucus and copious perspiration. The pulse fell to 46 per minute, full and regular. He several times ejected at one gush a half-pint of greenish-black bile, and the amount of pure bile vomited was not less than a quart, besides freeing himself of several quarts of mucus and perspiration. Since this time there has been a notable improvement. He has had but one attack of epigastric pain, which occurred July 16, 1901, and was quieted by a hypodermic injection of water. He has complained much less and has resorted less to nostrums than ever before.

Case VII. Thermic Fever. Acute Delirium.—H. D. M., aged seventy-eight years. American. Has had for some months the premonitory illusions of senile dementia, and has been affected with chronic bronchial catarrh. June 30, 1901, found him with slight facial paralysis of right side, loss of power of lower extremities, speech thick, somnolent, marked arcus senilis. Falls asleep before completing an answer to a question and employs words without meaning. Temperature $100\frac{1}{2}^{\circ}$ F., pulse 108, weak, intermittent, irregular, respiration 40. Given a calomel purge and cold sponging. July 1. Morning temperature normal, pulse 72, intermittent, bowels acted freely. Answers more readily. Right side of face no longer blank, can elevate right angle of mouth; has more power over lower extremities. The atmospheric temperature at noon was 102° in the shade. At two o'clock he became wildly delirious, fugged at sheet and night dress, reached after imaginary objects in air and struggled with remarkable show of strength to get out of bed. Pulse 72, weak, irregular and intermittent. Temperature $102\frac{1}{2}^{\circ}$ F. At five o'clock temperature $104\frac{1}{2}^{\circ}$ F., and he was so wild as to require the exertion of great force to hold him in the bed. He was given a hypodermic injection of 30 drops of Norwood's tincture into the upper part of the left thigh which produced vomiting of bile and mucus and free perspiration. In fifteen minutes was as quiet as a lamb. At eight o'clock was transferred to the private ward of the city hospital where he rested fairly well through the night. He passed into a confirmed state of senile dementia, and after a few weeks' stay in the hospital was sent to Longview where he passed away a month or two later.

Case VIII. Convulsions.—R. L., aged fourteen months. American. This child was seized with convulsions October 7, 1901, the result of infectious pleuro-pneumonia, two other children in the same household being under the treatment for the same disease. When I reached him he had had two tonic convulsions, and was unconscious, with spasmodic twitchings of the face, arms and legs. Respiration rapid and labored, with mucous rattle in the throat, skin surface cyanotic, temperature 104° F. Fifteen drops of Norwood's tincture were given hypodermically,

and the issue was awaited with anxiety. Within 10 minutes there was complete relaxation, retching and vomiting, copious perspiration, the color of the skin assumed a more natural hue, the respiration became less labored, although the noisy mucous rattle continued; and, while there was absolute pulselessness for over an hour, the action of the heart became less rapid and of better force. Consciousness returned within two hours. Retching and vomiting continued for about three hours. Free movements of the bowels took place. Between the acts of vomiting the patient rested quietly, and, with the subsidence, passed into a sleep that lasted for several hours. Convalescence was assured two days afterwards.

Case IX. Convulsions. Opisthotonos.—Mrs. X., widow, aged fifty-one years, American. In August, 1894, had several attacks of headache with general muscular spasms, eventuating in opisthotonos, coming on about once a month. Hypodermic injections of morphine seemed to be the only means of controlling the paroxysms. In January, 1895, was taken with brachial neuritis affecting right arm and shoulder. The arm was practically useless for six months. In the spring of 1895 became affected with cerebro-spinal meningitis, which prostrated her for four months. Recovered and was fairly well for a year. In November of 1900 had severe attacks of pain in the back of her head, with spasms and opisthotonos. In February, 1901, was confined to bed, and was bedfast until July. Headache was persistent; convulsive attacks occurred almost daily. During all the time, from August, 1894, hypodermic injections of morphine were used freely by different physicians, and she was provided with a hypodermic syringe and morphine tablets which she made use of herself. Since July, 1901, she has had no spasms, but has suffered continuously with pain at the base of the brain, and with a feeling of weakness and rigidity of the muscles of the neck, as though they were insufficient to support the weight of the head. On this account has been obliged to recline most of the time. Had insomnia and aggravation of the headache at night. Came under my care June 16, 1902. The skin sallow, conjunctiva tinged a muddy yellowish hue, lips and gums were a grayish-blue, the tissues flabby, and she was without energy or animation. The treatment was confined to a placebo, directions as to diet and personal hygiene, and a request to be summoned at once, in the event of any spasmodic seizure. June 28, the call came. The body formed a beautiful arch from the head to the heels. Low moaning cries of "Oh, my head! my head!" issued from the lips. The eyelids were tightly closed, and forcible retraction revealed the pupils rolled up, or down, or sideways to avoid the direct gaze. In the convulsive gyrations, too, there was revealed a scrupulous care not to improperly disarrange the drapery. Twenty drops of Norwood's tincture were injected into the upper part of the right thigh at once. Within 10 minutes the moaning ejaculations ceased, and there was complete muscular

relaxation. In half an hour, there being no action upon the skin, and no retching, 15 drops more of the tincture of veratrum viride were injected. This was shortly followed by copious perspiration and salivation, retching and vomiting of bile and mucus. She complained of difficulty of breathing, and of blindness, and for one hour and a half was pulseless, although the heart's action was regular and of good force. The disquieting effects of the drug all passed off in three hours and a half, after which she rested quietly, and slept at intervals through the night. In the morning she was a different woman. The heaviness and stiffness had nearly disappeared from the base of the head, there was no headache, nothing but prostration from the depletion of the night before. The skin and conjunctivæ had cleared up wonderfully, and the expression, from being sodden, had some show of animation. In fact, she was a new woman. The persistent headaches, the brachial neuritis, the cerebro-spinal trouble, and the pains in the lower extremities pointed to a specific basis for the hysteria, probably an early infection from her husband. She was given once daily, for 30 days, a deep injection of benzoate of mercury into the muscles of the buttocks. Under this treatment, improvement was marked and progressive, until at the end of it, she expressed herself a well woman, only lacking the full vigor of her earlier years.

Supplementing the cases just related, Dr. Milton J. Blum, of San Antonio, Texas, writes, under date of August 13, 1902: "During the past 10 years I have always used veratrum viride in puerperal eclampsia. Within this time I have had six cases of this kind and have lost only one. That was a case of most terrible toxemia; there was severe hematogenous icterus and the blood was disorganized. Convulsions set in before labor, which had to be induced, and forcibly carried out. During three days consciousness never returned. The veratrum viride did not help, nor did anything else, including salt infusion. Perhaps if I had used the large doses you do I might have saved the case. In all the other cases, veratrum viride acted promptly, though I had to repeat the injection in several cases, but I have never given more than 15 minims hypodermically at a single dose. I can say that I have come to depend upon veratrum viride more than all else together."

In reviewing these cases, with others previously reported in the paper earlier referred to, it may be remarked that reflection leads to the conclusion, that in some a larger dose of the drug was given than was required to elude sufficient therapeutical effect. It is believed that 20 drops of Norwood's tincture is the proper initial hypodermic dose for an adult, to be followed by 10 drops more in half an hour, where it falls short of emesis. In no case has lethal termination been connected with its use, and no supporting means or modifying agents have been deemed requisite, however grave the symptoms manifested after its exhibition.

In this connection it may be well to state that

the National Dispensatory directs that, on account of the irritant properties of veratrum viride, Norwood's tincture and the fluid extract should be well diluted with water when employed hypodermically. In all my cases I have injected Norwood's tincture without dilution. It leaves considerable soreness about the point of injection, which, in most instances, disappears in a day or two, although exceptionally continuing for several days or longer. The only severe irritation arising from its use is the brachial neuritis narrated in Case V.

Cases of profound toxemia demand prompt emesis and the removal of poisonous matters remaining in the stomach. For this purpose the veratrum viride should be introduced by hypodermic injections. This method should be adopted whenever there are convulsions, high temperature with delirium, suddenly developing, acute hysterical paroxysms, or acute abdominal pain due to colic, passage of gall-stone, nephritic or ureteral calculi. In acute indigestion with colic or gastralgia, it is one of the most effective means at command, promptly relieving pain and emptying the stomach of its contents. In abrogating pain it is not inferior to morphine, and, is greatly the superior of that alkaloid in its freedom from after effects. The complete relaxation of tissue induced by veratrum viride renders it exceptionally valuable for the excruciating pain occasioned by the passage of calculi, as well as to promote their passage downward by obviating spasmodic constriction. As a pain reliever it merits more extended trial, and it may come to displace morphine altogether.

Its internal ingestion is indicated where there is no critical condition and where a slow action of the medicine without perturbation of the system is desirable, as in toxic inflammations of the abdominal or pelvic viscera where vigorous contractions of the diaphragm or abdominal muscles might not be without danger.

Case V is perhaps open to criticism for the administration of a remedy exerting such marked depleting power in an advanced case of pulmonary tuberculosis, but no apology is offered for it, save that the situation called for speedy relief, the circulation was rapid and weak, the temperature high, the pain great, and respiration rapid with all the signs of acute infection of the left lung. Experience in its use with the feeble infant and the extremely aged had demonstrated its efficacy and safety, and, it was resorted to confidently and with good results, excepting the brachial neuritis accidentally occasioned. It has been reported as it occurred for whatever it may convey in the way of suggestion or caution to any whose notice it may attract.

Wherever the temperature has been exalted the reception into the circulation of a proper amount of the medicament has always been attended by a reduction to the normal or nearly normal. This is a consequence of heat separation through surface evaporation, and, probably also, of some special action of the drug upon the heat centers.

In Case IV from the state of the patient and the amount of carbolic acid swallowed, there is no question that a fatal issue would have supervened, but for the injection of the veratrum viride. It caused the expulsion of the unabsorbed acid in the stomach; through the secretion it excited from the mucous surfaces the acid was washed off, and diluted, thereby modifying or obviating the caustic effect; while by the antitoxic qualities of the agent the poison finding entrance into the blood was neutralized.

Case IX, it will be noted, exhibited well marked hysterical features; Case VI, a male, also had many of the stigmata of hysteria, and, a typical case of hysteria in the male was detailed in the paper previously referred to. The acute manifestations of hysteria are more promptly and thoroughly disposed of by means of the hypodermic injection of veratrum viride, than by any other article of the materia medica. Commonly the basis is in a disordered digestion, with formation of toxins, but there may be any other form of blood contamination, as in Case IX, or, both may exist together. The dehydration of the tissues achieved by an ample dose of veratrum viride is a factor in the amendment of no small merit. The fluids drawn off carry out with them waste and deleterious products, the removal of which from nerve cells annuls irritation and permits a rest of overstrained organs. The renewed and purified blood stream, in the meantime, is furnishing the means for a regeneration. In all these cases of perverted nervous action,—hysteria, hypochondria, neurasthenia,—there is pressure at the base of the brain. The continued nervous erethism begets a congested state of the cerebral circulation, the flow is sluggish in the veins, the intercellular drainage is impeded, the nerve cells are filled up with, and irritated by, peccant material. There is an excess of fluid and overflow into the ventricles. The veratrum viride by starting a flood-tide in the veins relieves this vicious circle.

In these cases a matter not to be overlooked is the moral effect of the agent. From the feeling induced by its action, it is realized that a most powerful medicament has been brought into play, and the impression abides that only a complete comprehension of the case could have moved the medical attendant to such extraordinary treatment. The belief is engendered that it has wrought a radical change in the economy, the will power is enthroned, and the resolve is formed that there shall be no further demand for its employment, if the patient is able to control the indications that should once more make it requisite.

Without having had opportunity to test it in tetanus or strychnia poisoning, from its antitoxic powers and its capacity to allay muscular spasms, it certainly presents paramount claims for service as a therapeutic means in such conditions.

The properties by virtue of which veratrum viride antagonizes toxemia, are largely inherent in its active principles, or alkaloids, jervia and veratroidia. Both alkaloids are said to "depress the functions of the spinal cord" and to abrogate

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its reflex activity without affecting the irritability of nerves or the contractility of muscles. This probably means that they produce a contraction of the processes of the nerve cells of the cord, whereby reflexes are inhibited without disturbing the properties of nerve or muscle cells. Salivation is a constant result of a sufficient dose of jervia. It slows the action of the heart and lessens arterial blood pressure. In large doses convulsions occur and death from asphyxia. Veratridia has a feebleness of action than jervia upon the cells of the cord. It always induces vomiting, and, not infrequently, purging. In large doses convulsions ensue, less severe than those from jervia and death results from respiratory paralysis. It always reduces the frequency of the pulse, in small doses increases the force of the heart, but in larger doses weakens the cardiac action and lessens arterial pressure. Copious perspiration, in a large proportion of cases, is incident to the exhibition of both alkaloids in adequate amount.

It is possible that the jervic acid contained in veratrum viride, or some other acid present in it, may combine with the bile salts, setting free taurocholic and glycocholic acids which exert a stimulating effect upon the hepatic cells, and which, according to Pfaff and Balch, Schaeffer, Hupert, and others, increase both the fluids and solids of the bile. In this way it may maintain a claim to be a true cholagogue. The bile acids thus released, to some extent, find access to the blood. Color is lent to this hypothesis by the fact that the presence of bile in the blood and the action of veratrum viride produce similar phenomena: diminished motor and sensory irritability, reduction of the number of heart beats, and torpor and somnolence.

Clinical observation and physiological experiment not seldom run counter to each other. According to the latter, the large outpouring of fluids from the sudoriferous, the salivary and mucous glands, the stomach and gall-bladder, evoked through the agency of veratrum viride is merely a transudation through the vessel walls as a consequence of the lowered blood pressure. There is admitted an excitation of the pneumogastric nerve which inhibits cardiac action and only the negative statement is offered that it does not seem to stimulate the secretory nerves. A drug that may cause irritation of the pneumogastric, whose terminal filaments are so closely interwoven with those of the sympathetic secretory nerves, may also stimulate the latter, and that it does so there is no doubt in the mind of any clinician who has witnessed its full action. In this way may be solved the physiological paradox that it slows the action of the heart by a stimulation of the pneumogastric and lowers blood pressure by paralyzing the vasomotor nerves. The fact is, that only after the floodgates have been opened does the blood pressure fall, and then so great has been the withdrawal from the vital fluid that the pressure must decline from sheer depletion. Then may there be, and is, a lowering of

vasomotor tonus, but it is secondary, ensuing upon an enfeebled circulation.

Militating against a vasomotor paralysis, as a primary influence, of the full dose of the agent, is the circumstance that perspiration, in a notable number of cases, does not occur after its administration, supplying an indication that the secretory processes of some organs are more strongly excited at times through its agency than those of others. Thus, in Cases IV and V, it will be noted that there was no sensible action upon the skin, while the amount of bile and mucus poured out were very great. If the fluids exude solely as a result of vasomotor paralysis, the skin should always be affected the same as the other organs of secretion.

That very active secretion upon the part of the liver cells ensues after full doses of veratrum viride is evidenced by the amount of bile ejected. Many times the quantity of bile the gall-bladder is capable of containing is cast out through the mouth by the acts of vomiting. No such quantity finds expression in the ordinary so-called "bilious" vomiting, when the suction force of the pump-like contractions of the diaphragm obtains to the same extent as prevails in the vomiting efforts following the administration of veratrum viride. Moreover, as showing a secretory activity of the cells of the stomach, the bile in veratrum viride emesis is always green from the conversion of bilirubin into biliverdin by the stomach secretions, while in "bilious" vomiting, after the stomach has been emptied of its contents, it is frequently expelled yellow, revealing a lack of stomachic secretion, and, by analogy, of increased bile formation also.

That the liver performs the chief depurating office for the organism is admitted from the fact, that all the waste products from the tissues and all the material elaborated by the digestive organs for the nourishment of the economy must be carried through it in the venous blood current to undergo its marvelous powers of transformation before they are fitted to enter the arterial blood stream, upon which the sustenance of all parts depend. The vital chemistry through which these changes materialize is as yet unsolved, but enough is known of the chemical disintegrations and new combinations proceeding within the great hepatic gland to render certain that noxious matters finding their way there, are so acted upon by the constituents of the bile as to modify or lose their harmful properties. They are then cast out from the system, or undergo further conversion to accommodate them to some purpose in it.

This stimulation of the liver cells, enhancing the secretion of bile beyond the normal, follows also the internal ingestion of the medicine in amount sufficient to slow the pulse and produce a feeling of nausea, without emesis. In such instances the bile follows its natural course into the intestine, and is carried off downward. Of undoubted value, also, in the elimination of toxic substances, are the secretions of accessory glandular organs excited to unwonted activity, as the

mucous, the salivary and the cutaneous glands. Together the depurative forces of these organs may not be secondary to that of the liver. The kidneys also become subject to an augmented production of urine in consequence of the exhibition of veratrum viride, but the increased flow does not appear for 24 hours, and then it continues for several days. Such brief allusion has been made to these auxiliary emunctories only to make plain that what pertains to the largest gland of the body holds also for the small ones, and that they are all placed in the balance together. Their functions are often interchangeable and they perform vicarious offices for the others.

THE MORE FREQUENT DISEASES OF THE JOINTS: THEIR ETIOLOGY AND TREATMENT, WITH REPORT OF CASES.*

BY JOSEPH H. STOLPER, M.E., P.H.G., M.D., LL.L.,
OF MEMPHIS, TENN.

MEMBER TRI-STATE MEDICAL ASSOCIATION MISSISSIPPI, ARKANSAS
AND TENNESSEE; PRESIDENT SHELBY COUNTY MEDICAL
SOCIETY. MEMPHIS, TENNESSEE.

THE more frequent diseases of the joints are those which are met with every day both by the general practitioner and orthopedic surgeon. From their frequent occurrence and their disastrous effects, we would have a right to expect that a searchlight of scientific investigation would be found turned upon them, and their causes established for the purpose of treatment.

But a retrospective view of the present state of our knowledge of the diseases of the joints shows just the opposite, and although the symptoms are both subjective and objective, and make themselves very conspicuous both to the sufferer and the doctor, the causative factors are very little known, and the present status of the treatment of joint diseases is a most confusing one. It is true, we no longer amputate a limb for a circumscribed abscess, as used to be the practice, before the publication of Brodie's¹ monumental work of 1850, on diseases of the joints, but even now patients are frequently found bound to the sick-bed for years and sometimes forever, suffering excruciating pain, or walking with crutches, with an agonizing knowledge that they are past all hope of recovery. Although there is nothing more pathetic than to see young lives, children and adults, wasted as chronic crippled invalids, orthopedic surgery has been treated not as a child, but as a stepchild of surgery, and yet it is the only branch of surgery that has not the destruction but preservation of the limbs as the result of its operations. So true is the fact that orthopedic surgery has been neglected, that Sherman found upon investigation that only 38 medical schools in this country are teaching orthopedic surgery.² If we bear in mind the fact that there were 156 medical schools in the United States in 1899,³ we readily see why there are so many incurable cases

of joint disease, when there ought to be but few.

In a systematic study of the joint diseases the following propositions demand an answer:

1. What are the diseases of the joints, and how do they originate?
2. Do the diseases of the joints permit of group classification, for the purpose of diagnosis and treatment?
3. Can there be a definite plan for the treatment of joint diseases, or must each case be treated upon its own merits?
4. When is operative interference advisable, and when not?
5. What are the best therapeutic agents in the treatment of the diseases of the joints?
6. Should we operate in tuberculous diseases of the joints?

In answer to the first, we must consider that which is known to everybody, but which no one has ever considered in relation to joint diseases, that the joints, being parts of the body, are subject to the same pathological influences as all other parts of the body; that disturbances in nutrition and excretion affect the joints as other parts, and that a simple inflammation in the joints may lead to most serious effects. These may be due to the tendency of the inflammatory exudation to organize and solidify, thus leading to ankylosis unless such exudates are removed by nature or by therapeutic means. Micro-organisms finding their way into the joints will here produce similar conditions, all conditions favorable to their existence being present. To name the diseases of the joints, in view of what has just been stated, would be useless for two reasons: (1) That the joints being subject to all diseases mankind is affected with, it would imply the naming of all known diseases to medical science. (2) The nomenclature of the joint diseases as used at present, in some instances, as a rheumatic synovitis, quiet diseases,¹ signify absolutely nothing. Others are misleading, such as rheumatic arthritis or osteo-arthritis, which include under one name as many different diseases and conditions, as would be included in the term "fever" if the word "fever" would be used to indicate all diseases.

To the second proposition, Do the diseases of the joints permit their classification in groups for the purpose of diagnosis and treatment? I must first invite your attention to the following report of nine cases, the first six being my own, from which I shall later make my deductions, answer the second and third propositions.

Case I.—K. L., female, aged twenty-six years, weight 89 pounds, consulted me in reference to her inability to use her right leg, complaining of severe pain in the knee- and ankle-joints. She was first seen in October, 1900, and has been under observation since that time. Rheumatism on the mother's side, negative on the father's side. Patient had chorea at puberty, suffers with dysmenorrhea, is of a neurotic temperament, gave a history of having sprained her ankle a year previously. The organs of the chest and abdomen negative. The right knee was found very much enlarged, hot, and painful to pressure, fluctuation and movement of the patella very free. The ankle and muscles of the calf in an atrophic con-

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dition. Examination of the urine showed traces of albumin, the blood contained an increased number of leucocytes. Aspirations of the knee-joint gave a thick, cheesy pus, which, upon a bacteriological examination, was found to be tuberculous. This decided the diagnosis. The patient was put upon strychnine, quinine, iron, and cod-liver oil; ordered to keep the recumbent position, and ice packed around the knee- and ankle-joints, until the local temperature was reduced. The knee was frozen with ether and aspirated and a large quantity of pus removed, then the joint was filled with alcohol, after a short time withdrawn, again filled with a 1 to 2,000 bichloride of mercury solution, which was allowed to remain in the joint for five minutes, then withdrawn and the joint flushed with plain sterilized water.

This same process was resorted to upon the ankle-joint and repeated every three months for one year. After each operation there was an elevation of temperature during the first 24 hours only. Between the operations, for the first three months the patient was in a recumbent position; after three months she was allowed to sit up, but not use her limb for nine months. During these nine months plaster of Paris bandages were applied every two weeks for three days each time, between the plaster of Paris bandages galvanic electricity, warm salt sponging and massage with cod-liver oil were used, alternating twice daily for the purpose of counteracting the atrophic conditions of the muscles. The patient was fed upon nourishing food, eggs, milk, cream, white meats, red meats excluded. At the end of the ninth month, patient was allowed to walk, which she did without discomfort. Her weight increased to 116 pounds. Patient was discharged in December, 1901, as cured, and has remained well since.

Case II.—H. M., male, aged eleven years, was brought to my office by his father. The history given was that while playing he fell from a fence several months ago, and injured his right knee. This pained him ever since, and finally attracted the parent's attention because of his inability to walk or to dress himself. Family history, mother very neurotic, no rheumatism, father's history negative. Personal history good previous to the accident. General physical examination negative. The right knee was found to be very much distended; the joint was totally disorganized, so that at first an amputation seemed necessary. The patient was put to bed, ice packed around the knee until the local temperature was reduced. The joint was then aspirated, patient immediately had a very severe rigor. The joint was rapidly washed with alcohol, filled with bichloride of mercury 1 to 2,000 solution, and flushed with sterilized water. The point of the needle entrance was then closed with collodion, and the patient given a hot rectal injection of normal salt solution. A hypodermic injection of strychnine $\frac{1}{30}$ of a grain, with 10 drops of whisky every 15 minutes. Patient passed a very bad night, during which I saw him twice, temperature 104° F., pulse too rapid to be counted. Stimulants kept

up, cold sponging of the body and ice applied to the knee. The effect was very salutary, patient sleeping quietly for several hours. The liquid withdrawn from the knee was examined the next day, and found to contain staphylococci and streptococci. The patient was allowed to rest for four days, when the same operation was repeated, both times using ether for a local anesthetic, the second time the alcohol was omitted, no chill, slight elevation of temperature for the first 24 hours. Patient made a perfect recovery and was discharged the same month with a good sound limb.

Case III.—M. S., male, aged sixteen years; was attending him for lobar pneumonia. The crisis came on the ninth day, he was progressing well, when his mother called my attention to a large swelling of both knees and the right elbow-joint. The joints were very much distended and hot. Under the usual technic the joints were aspirated and treated in my customary way. The withdrawn substance was a pus of a thick creamy nature, which was found to contain the pneumococcus. Patient made a good recovery, and had no trouble from his joints.

Case IV.—B. F., a six-year-old boy; lobar pneumonia, the case was progressing slowly but well. On the twenty-eighth day both knees, elbows, and right shoulder-joint began to swell. On the next day they became very prominent, as though the joints might rupture from the large accumulation of fluid. The parts were very hot, the lymphatic glands infiltrated and hard to the touch.

The joints were all aspirated on five successive days, treated in the usual way; patient made a good recovery. The examination of the fluid showed the pneumococcus.

Case V.—This case is interesting as it occurred in the same house two months after the case just described, in A. F., the four-year-old sister of Case IV. She had no illness before or at the time, but slept with her brother before his illness and until I first saw him. Both her knees were very much infiltrated, the lymphatic glands prominently enlarged, the joints hot, the child had a general temperature of $103-105^{\circ}$ F. The joints were treated in my customary way, and with the most gratifying results. The child was discharged after three weeks of treatment.

Case VI.—K. P., female, aged nineteen years, was confined to her bed before I saw her for about two years. She suffered much pain and swelling of her shoulder, elbow, and knee-joints, since she was five years old, when she passed, as I was told, through a severe illness of scarlet fever. Her family history was good. Patient suffers with dysmenorrhea, menstruation having begun at the age of sixteen years. The fluid in the several joints proved to be sterile. There was marked glandular infiltration.

The habitual treatment was adopted, with the result that patient was free from pain in three months, during which time three aspirations were made, but the treatment proved a failure, as the

infiltration returned in a short time after each aspiration. Heat at a high temperature was used without any success; tonic treatment was of little benefit; specific treatment for syphilis adopted with no apparent improvement. During this time I lost sight of the patient. No diagnosis was ever made.

Case VII is one of the two cases reported by Dr. E. F. Wells,⁶ the first case I omit, because it happened 20 years ago before bacteriological light could have been thrown on the case. The second case had been seen a few years ago. The patient had an attack of lobar pneumonia in which the crisis occurred at the end of a week. The left sterno-clavicular articulation was acutely inflamed. The joint disease appeared two or three days after the crisis. Fluctuation of the joint developed in 48 hours. A small opening was made, a thick creamy pus discharged, which upon examination was found to contain the diplococcus of pneumonia. The sac was then washed out with sterilized water, after which there was a thin serum exudate on two or three occasions when the dressings were removed; no further trouble. Healing was prompt.

Case VIII is a case reported by Dr. Frank X. Walls,⁷ which he states to have been a typical case of arthritis closely following a case of measles. In this the smaller joints of the hands and feet were symmetrically involved. There was general enlargement of the lymphatic glands. The case did not respond to anti-rheumatic or tonic treatment. The final result is not given.

Case IX is a case reported by Dr. E. H. Ochsner,⁸ in a young woman who developed arthritis deformans in 1893. She came under his care in 1897. Almost all her joints were affected and she was so crippled that she could not walk or feed herself. She was absolutely helpless and weighed only 87 pounds. After discovering that she suffered with hemorrhoids, he operated for the same, and found the bowels distended with a putty-looking decomposing fecal matter. He also had to break a few joints. The patient gained 53 pounds in weight and was enabled to walk.

From the cases above reported we make the following deductions: that in many instances the joint diseases are caused by micro-organisms of different kinds, and consequently the proper way to treat such cases would be to treat them for their specific causes, and for the purpose of diagnosing and treatment the following classifications suggest themselves as the most rational:

1. *Joint diseases due to traumatism:* Synovitis, sprains, contusions, loose bodies.
2. *Diseases due to faulty excretion:* gout.
3. *Joint diseases due to constitutional germ-infection:* tuberculosis, syphilis, gonorrhea, pneumococcus and other germ diseases.
4. *Diseases due to malnutrition:* neuropathic (or Charcot's), hysteria, neuralgia, synovitis, fringes.

These four groups are based upon what I believe to be the true etiological factors, my belief being based upon the study of 64 cases, six of

which are my own, and 58 obtained from medical literature reported as follows: 32 cases by Edward J. Cave⁹, seven cases by Nathan Raw¹⁰, seven cases by J. B. Herrick¹¹, two cases by J. C. Bloodgood¹², one case by A. F. Lemke¹³, one case by E. H. Ochsner¹⁴, one case by F. X. Walls¹⁵, two cases by E. F. Wells¹⁶, three cases by W. Osler¹⁷, two cases by R. G. Cole¹⁸.

The diagnosis of group three needs the microscope for its confirmation. You will notice that I have omitted the rheumatic group altogether, for the more we study the rheumatic group, the more we will find that it is a disease of the muscles and not of the joints proper.

The diagnosis of groups one and four depends upon the history and clinical behavior of the disease, and that of the second group upon chemical investigation.

With reference to the third proposition, after considering the cases reported and all that was in the medical literature within my reach, I have come to the conclusion that a uniform plan of treatment is impossible. My own experience and that of the authorities quoted seems to show that all cases should be treated on their own merits.

To the fourth proposition, When is operative interference advisable, and when not? I would say that the moment a joint becomes infiltrated and the infiltration does not disappear after 48 hours of rest, then it is the proper time to aspirate the joint. The operation is of benefit until there is serious destruction of the joint cartilage, after which this operation would be useless, but would require a more serious operation.

To the fifth proposition, What are the best therapeutic agents in the treatment of the diseases of the joints? I would put ice application, rest, partial immobilization, massage, bichloride of mercury from 1 to 2,000 solution, heat, cod-liver oil, electricity, suspension and constitutional alteratives and tonics, as the therapeutical agents par excellence in the treatment of the diseases of the joints.

To the sixth, the last but not least proposition, Should we operate in tuberculous diseases of the joints? I will say that I am aware that the textbooks and the majority of the profession are against interference with any tuberculous affection of the joints. In our day, when the brilliant and daring surgeons have entered the lung tissue proper, when the heart has been operated upon with success, there is no reason why we shall not enter a tuberculous joint, remove the cause, and cure the sufferer from a lifelong invalidism and premature death. That this is feasible, Case I goes to prove.

In conclusion I wish to point out: (1) That no matter how bad or how far the disease of the joints may have progressed, that with our present methods, the sufferer can expect not only relief, but positive curative effects, if the proper steps in treatment are adapted; (2) that while we can have no general plan for the treatment of such diseases, we have by the aspirating needle and microscope a valuable uniform plan for diagnosis;

(3) that diseases of the joints being due to many causes, the systemic conditions, family and personal history of the patient becomes of the utmost importance; (4) that my method of treatment is a modified Phelps method, but superior to Phelps' in the following points: (a) Carbolic acid, if used in drop doses only, does not have the desired effect, in large doses it causes sloughing of the parts, while bichloride of mercury, if not allowed to be absorbed, accomplishes its purpose and can be used in any quantity; (b) the 1 to 2,000 solution, while not too strong, is strong enough for germicidal purposes; (c) the use of alcohol hardens the tissues and prevents the absorption of the mercury, which is washed out with sterilized water; (5) That while I know that it is the practice of the profession to condemn operations on tuberculous joints, I wish to urge the advisability and necessity of such operations. Let us treat tuberculous conditions, when possible, as any other septic condition.

Finally, let us hope that orthopedic surgery, if given ample latitude, will,—progressing with the time, advancing with the labor of the medical profession, the perpetual guardians of mankind,—efface those terrible germ diseases of the joints, which are so disastrous in their effects, thereby making useful human beings from what are now helpless sufferers.

68 East Court Street.

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INTERMENSTRUAL PAIN.

BY JENNIE G. DRENNAN, M.D.,
OF ST. THOMAS, ONT., CANADA.

CASES of intermenstrual pain are being recorded. In these cases the pain occurs from the twelfth to the sixteenth day from the commencement of the preceding menstruation, in some cases it is paroxysmal, the attacks either coming on at intervals of several hours and lasting from five to fifteen minutes, or the pain is constant with exacerbations often of the greatest severity and resembling labor. It ordinarily lasts two days. In no case was there a menstrual discharge; but an increased amount of leucorrhea was observed. In most books the pain is described as ovarian; but in one case it appeared to be due to stenosis of the internal os, and in another was cured after a curetting for endometritis, and in this latter case

the necessary dilatation and not the curetting may have caused the relief.

In one case which has come under my care in a young unmarried woman, who is of a highly neurotic temperament and suffered from dysmenorrhea also, I obtained good results by merely treating the general condition, and my diagnosis was that there was a spasmodic contraction of the cervix uteri—internal os—due to the extreme excitability of this organ in this neurotic patient at the time when the unimpregnated ovum was being cast off from the uterus. In a normal individual this act would be as painless as menstruation, but in an abnormal one—highly neurotic—as painful as her menstrual period. The following table will help to explain my theory as to the time when ovulation, menstruation and expulsion of the unimpregnated ovum occur. Supposing menstruation to occur on May 8, then I hold that ovulation occurs before, not at the same time, that a turgid, thickened condition of the uterus occurs into which the fecundated ovum sinks; but impregnation not occurring as it would in this case, the mucous membrane is disorganized and this constitutes the phenomenon known as the menstrual discharge:

May 1 or thereabouts, ovulation.

May 8 or thereabouts, menstruation.

May 20 or 22 or thereabouts, escape of ovum from uterus.

May 29 or thereabouts, ovulation again.

June 5, menstruation again.

If ovulation occurs a week or thereabouts prior to menstruation this is the proper time for impregnation. Menstruation, which is the sign of nonfecundation of the ovum, the mucous membrane of the uterus being depleted and restored to its former state, which had been changed to that of a mucous membrane ready for a fecundated ovum. After menstruation is over a new mucous membrane must be formed, and according to the old Levitical law, it seems sensible and natural that sexual intercourse was prohibited for the week following the menstrual discharge. The reason of the prohibition was that the cells of the new mucous membrane were not fully formed cilia by which the sperm cells are directed toward the ovum were not present and any sperm cells would not pass to the germ cell. This prohibition was an attempt to obey natural law; the mucous membrane of the expectant but disappointed uterus being at the end of this period replaced by a new one; fecundation might again be possible, but would it? Here is a normal mucous membrane, but one not prepared to nourish an embryo. Most observant women notice at about 10 days or two weeks after the onset of menstruation a slight discharge of clear mucus on suddenly arising from a stooping or recumbent position or on exertion; now this corresponds to the time of the "intermenstrual pain" noted in some cases, and also to the time (a week after menstruation plus menstruation equals about the 11 or 12 days of the Jews) prohibited by Levitical law. The escape of this unimpregnated ovum is

painless if the cervical canal is normal, but if there be a stenosis, or an endometritis causing the ovum to be embedded in a mass of tenacious mucus enlarging the bulk of the mass to be discharged, or if the engorged inflamed mucous membranes cause a narrowing of the canal, or if on account of the highly neurotic temperament a functional spasmodic condition is aroused, then it will be a painful act. It might be said that this pain is ovarian and connected with ovulation, but the next ovulation is some time distant,—a week or so. This case of mine was benefited by general tonic treatment.

Now, the uterus having discharged this unimpregnated ovum, coitus may again occur, the sperm cells pass up to the Fallopian tube, there to await another ovum. It seems most probable that the period preceding menstruation is the proper time for coitus; for then an ovum is ready for impregnation and the uterus is ready to receive it. Some hold the view that the period of menstruation following impregnation is not suppressed but the one following it; but why this necessity of another ovulation? Does ovulation occur during pregnancy? Does not the true corpus luteum answer this question—its function being to maintain an equilibrium in the ovarian tissue which would not require to be maintained by this process if ovulation still continued.

Another theory may be brought forward, namely, that ovulation occurs at the time when "intermenstrual pain" is observed in these cases. It is a pain of a colicky nature, for the Fallopian tube is a muscular organ—no colic is possible in an organ not containing muscular tissue—and when (on account of some pathological condition of the tube it grasps the ovary and the ovum enters it) excessive muscular contractions are excited. The increased discharge from the uterus which is observed may be caused by a small degree of congestion incident to ovulation. The fact of "intermenstrual pain" occurring on the seventh, ninth, twelfth and fifteenth days after the cessation of menstruation would favor the idea of its connection with ovulation, and here again the Levitical law could be explained: for if ovulation took place somewhere between the seventh and twelfth days or even later after the cessation of menstruation there would be no use in intercourse taking place until then. To those who do not regard the Bible as a book any more inspired than the works of the present day it may not carry much weight that such a law was believed in and followed; but in many respects the Jews were a well-educated people, and they may have had a reason for the faith within them. If ovulation occurred between the seventh and twelfth day after the cessation of menstruation, a fresh ovum would be conveyed into the tube, there to be impregnated, and if impregnated it would then pass on into a uterus prepared to receive it; but if impregnation did not occur it would pass into the uterus and be carried away with the menstrual discharge.

By this last theory "intermenstrual pain" is a

Fallopian tube colic, and it seems the more likely of the two theories.

Ovarian pain just prior to the menstrual discharge is a passive rather than an active congestion.

The second theory that ovulation occurs some length of time prior to menstruation may seem doubtful to those who regard ovarian pain a few days before the onset of the menstrual discharge as due to a congestion dependent on ovulation. Just prior to the menstrual discharge the uterus becomes very much congested, although if it is in a healthy condition no pain or inconvenience is felt; but if in a pathological condition—its vessels not being able to contain all the fluid they should—part of it is forced back on the ovarian vessels and a passive congestion of the ovaries follows, with resultant pain and heaviness, which is generally relieved after the menstrual flow is once established. If the ovaries are in a perfectly normal condition, this passive congestion may cause little or no disturbance; but if they, like the uterus, are in an abnormal state, discomfort will ensue. A reciprocal action seems to exist between these two organs, viz., during ovulation there is a slight passive uterine congestion evidenced by a discharge of clear, glairy mucus at the middle of the "intermenstrual interval"; and during the establishment of menstruation there is a passive ovarian congestion. It is likely that even in the normal healthy condition of the uterus, this reciprocal passive congestion of the ovaries occurs.

In the majority of women at the establishment of the menopause there are excessive uterine hemorrhages. In this condition the ovaries are becoming atrophied, their vessels are diminished in size and number and their customary passive congestion cannot ensue, therefore the hemorrhage from the endometrium is more excessive. The circulation has not as yet become accommodated to the new order of things; following these excessive hemorrhages we have "hot flushes," a stage which may continue for some time and denotes circulatory disturbances in other parts and an attempt of nature to restore a circulatory balance, which later on is fully established.

MEDICAL PROGRESS.

MEDICINE.

Olive-Oil for Ulcer of the Stomach.—K. Cohnheim of Berlin was perhaps among the first to find that in certain affections, especially contractions of the pylorus, the methodical ingestion of olive oil was of advantage. He further recommended that in all forms of pyloric obstruction, large quantities of olive oil might be of service. A. Mathieu followed with the discovery of the effect that if olive oil be added to an Ewald breakfast, a decrease in the secretion of hydrochloric acid is noticed. If this is the case, and granting that the spasm and pain of the stomach, especially at the pylorus are due to hyperchlorhydria, one might argue that this disease also would be benefited

by the use of olive oil, in large quantities. K. WALKO, (La Sem. Méd., Nov. 12, 1902) associated with von Jaksch, has been making experiments in this line, and has obtained very encouraging results. He has likewise extended his experiments to cases of ulcer of the stomach, a condition which is always accompanied by hyperchlorhydria of great or mild degree. The primary indications in treating such ulcers are to nourish the patient without irritating the ulcer, both of which are fulfilled by olive oil which has considerable nutritive matter and is entirely inoffensive to the mucous membrane, and does not cause any unnatural fermentation in the stomach. He begins by giving a few teaspoonfuls of the olive oil, followed immediately by some mouth-wash to remove the flavor. The dose is then steadily and slowly increased until about 150 c.cm. are given in a day, in three divided doses. If the patient shows an aversion to olive oil, it may be given as an emulsion, by means of a stomach tube. At the same time all other food by mouth is discontinued if the more grave symptoms do not begin to improve after five or six days of the oil treatment. No haste is made, moreover, during this time, to return to the usual washing out of the stomach. Moreover, olive oil acts as a corrigit of the constipation, which is so often present in ulcers of the stomach. The author has used this method of treatment in nine cases of ulcer with uniformly good results. Within two weeks he has found all the severe symptoms absent. He continues the administration of the oil, associated with suitable food, for another two weeks thereafter.

Cause of Gastric Hemorrhage.—Cases frequently die of gastric hemorrhage and at autopsy no real cause can be found for the bleeding. The diagnosis of capillary hemorrhage is then made. Since a very careful examination of the gastric mucous membrane will often bring to light small ulcers which would escape the superficial observer, M. TIEGEL (Münch. med. Woch., Nov. 25, 1902) believes that the diagnosis of capillary hemorrhage is often wrong. Severe bleedings are common with the smaller ulcers, since inflammatory changes are less frequent here. Hence thickening of the walls of the blood-vessels or obliteration of their lumen is not so common as in the larger defects, where in consequence, the hemorrhage will be less profuse or absent entirely when the process extends to the arteries. Besides, thrombi form more readily in the inflamed and infiltrated tissue.

Action of Antipyrine.—Starting with the assumption, based upon previous experimental work, that pyrexia is accompanied by an exaggeration of the normal conversion of the liver's glycogen into glucose, and that increased secretion of glycogen produces in the liver an increased temperature proportional to the increased general temperature, G. FERRARINI (Gazz. Osped., Nov. 16, 1902) has sought to determine the influence of antipyrine upon the glycogen secretion; and through treatment of liver-sections with antipyrine, in the thermostat, ascertained that that drug inhibits almost entirely the transformation of glycogen into glucose. Passing from experiments in vitro to experiments upon the living animal, the author starts with the principle that, if antipyrine inhibits the conversion of the liver glycogen into glucose, this effect must be produced either through a paralyzing action upon the nervous system or directly upon the hepatic cells. If the former, such paralysis probably occurs in the glyco-secretory fibers, discovered by Cavazzani, in the celiac plexus. To determine the latter point, the celiac plexus was isolated in the living animal, and subjected to electrical stimulation; small portions of the liver being removed immediately after such electrical excitation, and tested for glycogen; with the result that the effect of stimulation

of the celiac plexus upon the glycogen-content of the liver, was much decreased when the animal was under the influence of antipyrine, as it was also when the animal was simply narcotized. Thus it seems evident that antipyrine exercises an inhibitory effect upon the hepatic glyco-secretion; and from the fact that this effect of the drug is manifest equally in the extirpated organ and in the living animal, the author inclines to the belief that its action is exerted directly upon the liver-cell. Ferrarini concludes, therefore, that the influence of antipyrine upon the temperature is partly due to its power to lessen production of body-heat, and such diminution is accomplished through arrest of hepatic glyco-secretion, which latter is, in some pyrexias, if not in all, markedly augmented.

Report of a Disease in the Philippine Islands Clinically Resembling Glanders.—From the biological laboratory of the Department of the Interior (1902, No. 1) a report is published by R. P. STRONG, of a disease clinically resembling glanders or farcy. In the first case referred to the laboratory a diagnosis of farcy had already been made by three veterinarians. But microscopical study revealed the true cause of the malady. While farcy owes its origin to one of the schizomycetes or fission fungi (*Bacillus mallei*), the disease under consideration is not due to bacterial infection at all, but one of the budding or yeast fungi (blastomycetes). The disease starts as a small nodule situated in the cutis and frequently in the neighborhood of some slight abrasion. From the first nodule the infection spreads, apparently along the course of the lymphatics, and eventually many buds form. Frequently the adjacent lymphatics become swollen and arranged in a row presenting somewhat the appearance of beads on a rosary. The younger tumors are hard at first but later soften and form large abscesses. If left to themselves they finally open and leave ulcers with margins which are usually irregular. If incised early the abscesses are found to contain a bloody, purulent, tenacious material. The contents of the older tumors is yellowish-white, gelatinous and very tenacious. The disease extends gradually; in neglected cases it may spread over almost any part of the body and even invade the nasal mucosa. A mucous discharge from the nose then appears, and the picture now closely resembles glanders. In fairly severe cases there are slight fever and loss of appetite; in severe cases anemia and cachexia appear. Mild cases may run an almost afebrile course. Glandular metastases occur but metastases in the internal organs have not been observed. Occasionally sinuses form in the deeper muscular tissues. The disease is chronic; it may last for months but the prognosis is usually favorable. The nodules should be opened early, curetted, cauterized and cleansed with some antiseptic solution.

Scarlet Fever with Relapse.—Relapses in scarlet fever have not been frequently recorded. Many hold that in such cases the primary attack has not been scarlet fever, and that the relapse is merely the result of infection through confinement in a scarlet fever ward. The importance of recording cases of undoubted relapse is therefore very great. H. FRAZER (Lancet, Nov. 20, 1902) tells of a case in which no apparent doubt can attach itself to the diagnosis either of the primary infection or of that which evinced itself in the relapse. The patient was twenty years old, and was admitted into the Aberdeen Fever Hospital, June 8, 1902, suffering from scarlet fever. There was a well-marked punctate rash, accompanied by a suffused erythematous blush extending from the neck downward, all over the body. The eruption had appeared first on the day previous to admission. The tongue was much reddened and papillated; it was a typical raspberry tongue. The

throat was much inflamed, but there was no membranous deposit. The submaxillary glands were slightly enlarged. There was no desquamation and the urine was normal. The morning temperature was 99° F., and that in the evening, 99.6° F. On the day after admission the patient's temperature rose to 102.6° F., and on the next day it was 103° F. Rheumatic pains in the left shoulder and both knee-joints were now complained of. Salicin was administered. On June 9 a carbuncle developed on the nape of the neck. Signs of fluctuation were evident on the twelfth, when an incision was made and the purulent contents evacuated. Healing took place rapidly. The rheumatism disappeared, the temperature became normal, and on the 19th the patient was able to get up. On the twelfth desquamation had been observed on the neck and hands, which gradually increased in amount, and by the twenty-second was very profuse. On the twenty-sixth, six days after the patient had been allowed to get up, a severe attack of diarrhea and vomiting occurred, and on the same day a very severe punctate rash appeared, which, by the next morning, extended over the whole body, the face being free. The tongue was thickly coated, the throat was much swollen and congested, and the submaxillary glands were enlarged. The temperature had risen from normal to 102.6° F. The urine contained no albumin. By the twenty-eighth, three days later, the rash had disappeared, the tongue was papillated and cleaning, and there was some grayish, membranous deposit on the throat, but the diphtheria bacillus was not found. The temperature gradually fell to normal, remaining so until July 3, when there was a slight rise for a day or two, and the urine contained a slight trace of albumin. Soon afterward the patient became convalescent. As already mentioned, the desquamation which followed the first attack was extremely abundant; that following the relapse commenced and extended in an identical manner. On the hands it was observed as a powdery substance, and was easily observed when drying the hands after washing. On the feet and legs it was, save for the lessened amount, similar in every respect to the primary desquamation. On August 4, after nearly two months in hospital, the patient was discharged free from infection. As regards the origin or the relapse or second attack, two explanations are, the author thinks, possible: (1) That it was simply an instance of auto-intoxication in the patient whose immunity was short-lived; (2) that a fresh strain of the poison was contracted by the patient on getting up. Coupled with the fact that immunity after the first attack was not fully developed, the latter theory is, he thinks, the most probable.

Cholera Antitoxin.—An opportunity to test in various ways the efficiency of the new cholera antitoxin and vaccine prepared by the Japanese was recently afforded to W. C. MABRY and H. C. GEMMILL (*Jour. Am. Med. Assoc.*, Dec. 20, 1902), contract surgeons U. S. A. An epidemic of cholera had broken out on the transport Sherman just before entering Nagasaki harbor. A temporary hospital was established on shore with over 100 inmates, including medical staff and exposed cases. Ten further cases developed, of which six died. The antitoxin was used in eight cases of which four died, these being sick men whose ultimate recovery was doubtful anyway. Of the four which recovered two were very severe, and two early cases were apparently aborted. Marked amelioration of symptoms was observed in all cases, the effect on the diarrhea, vomiting, aphonia and anuria being marked. The prophylactic effects of the cholera vaccine was voluntarily tried on the writers and later given to 85 soldiers. The sequelae were varying degrees of pain, induration and tumefaction at the site

of injection, headaches, slight nausea, and more or less depression. Highest temperature 101° F., highest pulse 120. No symptoms were noted after the tenth day in any case. The blood-serum antitoxin is obtained from a horse immunized to the comma bacillus in much the same manner as that practised in the preparation of diphtheria antitoxin. The vaccine is not nearly so severe in its after-effects as that of Haffkine and the preparation is different. As much of a pure culture of comma bacillus as can be taken up on a 0.25 cm. platinum wire loop is mixed with 1 gm. of a 0.5 per cent. solution of sodium chloride, placed in a hot water bath at 60° C. for 30 minutes, then enough carbolic acid added to produce a 0.5 per cent. solution of that reagent. An injection of 1 gm. is believed to grant immunity for from four to eight weeks. A second of two gms. may be given seven days later, and a third of three gms. 21 days later, conferring immunity for 15 to 24 months.

A Case of Ulcerative Inflammation of the Gall-Bladder in Typhoid Fever Ending in Perforation.—

On the twelfth day of the disease the patient of GUNDEHER (*Bol. Gaz. Bot.*, No. 41, 1902) developed symptoms of acute perforative peritonitis. An immediate laparotomy did not reveal any perforation in the intestines. The peritoneal cavity was drained, the condition of the patient did not improve. At the autopsy a perforation was found in the gall-bladder. According to the author ulcerative inflammation of the gall-bladder is not rare in typhoid and is caused by the same typhoid bacilli, but it seldom causes perforation.

Primary Cancer of the Hepatic Duct.—The literature of this affection, gathered by LEON INGELRANS (*Arch. Générales de Méd.*, Sept., 1902) includes 16 cases, about equally divided between the sexes, and ranging in age from twenty-nine to seventy-three years. There is little if any tendency to secondary involvement of other organs except of the liver by contiguity; therefore from the situation of the growth in the narrow canal, the symptoms of obstruction are manifest while the tumor is yet small, and long before there is any cachexia. However, if only one branch of the duct is involved there may be no symptoms of obstruction till later. The biliary vessels above the lesion are dilated, and the dilatations filled with mucus, bile or pus and with thickened walls; may be so numerous that the liver parenchyma actually resembles a sponge, or has an angiomatous appearance. Cirrhosis from obstruction is a common accompaniment. The liver is generally green, yellowish or grayish-green, or mottled. It is usually large and smooth, but may be normal in size or atrophied. The gall-bladder may be atrophied, the cystic duct being obstructed by adhesions or pressure; it may be distended with bile if obstruction is not complete; or it may be filled with serous or mucous fluid and of normal or diminished size. The cardinal and invariable symptom of the affection is chronic jaundice, and this is followed in due course by cachexia and in a comparatively short time (two to twenty-six months) by death. Accompanying the jaundice are marked itching and anorexia with special disgust for fat foods. Pain is sometimes severe, though it is not common; tenderness to pressure is almost invariable. The urine contains much bile pigment and the urea is diminished; the feces are clay-colored unless the duct remains permeable. The blood, in the author's case, showed 5,084,000 erythrocytes and 30,380 leucocytes, of which latter there were 85 per cent. polynuclear, 12 per cent. mononuclear and 3 per cent. eosinophile. Jenner had a case in which two days before death the red cells numbered 910,000, the leucocytes 9,000, and the hemoglobin 15 per cent. In cancer of the biliary passages there are four clinical types, viz.: (1) Form with large

liver and large gall-bladder; (2) form simulating hypertrophic cirrhosis; (3) form without dilatation of the gall-bladder; (4) form without icterus. In cancer of the hepatic duct the third variety is most frequent, the first is not rare and the last does not occur. The diagnosis at the outset is impossible, but later one may consider its differentiation from the following: prolonged catarrhal jaundice, stone in the common duct, cancer of the head of the pancreas, cancer of the liver, cancer of the bile passages lower down, and hypertrophic cirrhosis. Catarrhal jaundice may last five months, and tends to have remissions with corresponding increase in the color of the feces, never the case in cancer. A calculus in the common-duct gives practically the same signs as cancer of the hepatic duct, unless the calculus is of the ball-valve variety when it allows remissions; also, according to Hayem, in cancer there is hypopepsia, and in lithiasis, hyperchlorhydria. Cancer of the head of the pancreas may be palpable but often is not; glycosuria is often absent, the salol test negative, and fatty stools may be due to suppression of bile alone, quite as well as to suppression of both bile and pancreatic secretion. As a rule, but not always, the gall-bladder is distended. Massive cancer of the liver is not accompanied by icterus, but nodular cancer is accompanied by jaundice in two-thirds of the cases, and the diagnosis is obscure till the nodules are felt. Hypertrophic cirrhosis may be accompanied by decolorized stools, and, on the other hand, cancer of the hepatic duct may give colored stools; in both, the spleen may be enlarged. The only differential point is the long duration of hypertrophic cirrhosis. Cancer of the common duct is almost always accompanied by dilatation of the gall-bladder, and the liver is hypertrophied; the liver is not enlarged in cancer of the pancreas or the ampulla of Vater. The treatment, of course, is surgical, if operation can be performed early.

Very Early Diagnosis of Acute Articular Rheumatism.—Of all the infectious diseases, acute articular rheumatism is perhaps that in which the physician can render the greatest service by early diagnosis and intervention. Indeed, salicylates are by so much the more effective, the earlier they are applied. They shorten the duration and diminish the intensity of the attack, and, thus far at least, decrease the liability to cardiac or other manifestations of the infection. P. ACHALME (*Arch. G n rales de M d.*, Sept., 1902) observes that for two or three days preceding the rheumatic attack there is often an interference in the cardiac rhythm, with palpitation or irregular pulse. The pulse-beats occur in groups of unequal number and with irregular intervals, the heart beating in the same rhythm. The number of beats diminishes to between 50 and 60 to the minute, a distinction from arrhythmia due to neurosis, arterio-sclerosis, toxemia, asystole, etc., in which the beats are more frequent. At the same time the apex-beat is increased in force, but, strange to say, the patient is unaware of any cardiac difficulty. The subjective symptoms consist of lassitude, apathy, loss of appetite, perhaps gastric disturbance. When one meets these symptoms with the peculiar arrhythmia in a patient fifteen to thirty years of age, one should assume that a rheumatic invasion is taking place, and especially is the diagnosis probable, if the patient has shown a previous tendency to rheumatism. The cardiac arrhythmia is an expression of the invasion by the microbe or its toxins of either the nervous or muscular apparatus of the heart, and is a prodromal symptom occurring during the period of incubation or invasion.

Methemoglobinemia Due to Acetanilid.—A case without any marked constitutional symptoms is reported by R. C. CADOT (*Phil. Med. Jour.*, Nov. 29, 1902) of a man, aged thirty-five years, who, afflicted with severe

cranial neuralgia, took about 30 grains of acetanilid daily for almost six months. An intense general cyanosis was present, but with the exception of the pain, the patient felt well. The blood examination showed a dark-brown fluid, with characteristic methemoglobin reactions, but normal in other respects. The urine likewise showed the methemoglobin spectrum. Little improvement was noted in a month's time and two months later patient was reported in the same condition.

Segmentary Myocarditis.—To the French medical authorities belongs the credit of having called to the attention of clinicians and pathologists the special changes which take place in the condition known as segmentary myocarditis. According to Renaut the lesion is evidenced by a distinct symptomatology, consisting in slight anemia, weak, diffuse apex-beat and a soft murmur heard midway between the auscultation points of the mitral and aortic valves. At autopsy the heart appears flaccid, and the myocardium is friable and of a yellowish-brown color. Microscopical examination shows the fibers to be separated one from the other, owing to a softening and disappearance of the cementing substance which normally holds them together. The transverse striations are preserved, and there is no deposition of fat; but an accumulation of brown pigment is seen about the nuclei, which is sometimes present in enormous quantities. G. GIACOMELLI (*Rif. Med.*, Nov. 3, 4 and 5, 1902) details the experience of numerous observers in this affection, and presents his own conclusions concerning it. He states that such fragmentation and disintegration of the myocardium are of most frequent occurrence in acute poisoning from mercury, chloroform and fungi, etc., as also in auto-intoxication. These changes are seen much less frequently in general infections, and they are of even graver import than fatty degeneration. Through animal experimentation he found that sudden contractions of the heart-muscle induced by electricity do not cause segmentation, either in healthy animals or in those in whom infections had been produced prior to faradization.

Anachlorhydria.—Absence of hydrochloric acid from the gastric secretion, its effects and treatment are the subjects of a paper by L. FERRANNINI (*Rif. Med.*, Nov. 8, 10 and 12, 1902). Hitherto anachlorhydria has been considered chiefly as a condition secondary to carcinoma of the stomach, or other grave disease; yet its association with hysteria and neurasthenia is not infrequent. The condition of nervous excitation seen in hyperchlorhydria is in strong contrast to the depression of the secretory innervation which obtains in primary anachlorhydria; but that the two conditions have their origin in disturbance within the same sphere, though not of the same nature, is seen in the fact that anachlorhydria may succeed to hyperchlorhydria as a result of psychic traumatism, or, indeed, without apparent reason. Of the two principal functions of hydrochloric acid, proteolytic and antifermentative, the latter is the most important; and the ill effects arising from absence of that acid, are chiefly due to gastric, and secondary intestinal fermentation; while the proteolytic function may, to a great extent be fulfilled by lactic acid. The author has found it best to treat cases of anachlorhydria with drugs which excite secretion of hydrochloric acid, particularly pilocarpine and strychnine, rather than by supplying the deficiency through administration of hydrochloric acid.

Paradoxical Pseudo-Hypertrophy Following Infantile Cerebral Hemiplegia.—The rare phenomenon of hypertrophy occurring in the infantile cerebral palsies is reported by L. PIERCE CLARK (*Jour. Nerv. and Ment. Dis.*, Nov., 1902). He has reported in all five of the 12 cases upon record. After a review of the liter-

ature the author proceeds to an analysis of all cases in which the hypertrophy occurs. The family history, intra-uterine life, birth, sex and causes leading to the stroke, throw no light upon the occurrence of the condition. All cases recorded prior to these in this paper developed in subjects of athetosis and hypertrophy was in those parts most agitated; but in four of his own the author found no athetosis, but a partial epilepsy of the post-hemiplegic type instead. The enlargement in some of the previously reported cases involved all parts that were paralyzed, even the breasts, testicles and face of the side involved showed hypertrophy. The skin, fat and muscles may all hypertrophy in a single case, although some muscle hypertrophy is present in every case. The hypertrophy has been in the upper extremity in all cases but one. The order for the increase of size of these parts is the arm in nine cases; the forearm in two; the calf in one. The particular muscles entering the hypertrophy in order of their greatest involvement are: Biceps, deltoid and triceps. The parts not hypertrophic follow the general rule of atrophy in such lesions. In two of the author's cases true fiber hypertrophy existed; an enlargement and increase of the muscle spindles were found. Usually hypertrophy and hyperplasia went hand in hand. In all cases the hypertrophy was found of the pseudo variety. The hypertrophic parts were found invariably weaker than those of the sound side. Bony hypertrophy was present in the author's, in Lannois's and Foyalle's cases. Occasionally the bones of the entire upper extremity may hypertrophy, although usually those underlying the enlarged muscles increase in size. The degree of circumferential enlargement varies from one-quarter to seven-eighths inch, although not usually more than one-half an inch. The author believes that the cause must obtain under the following conditions: "The lesion is cortical, slight and transient; the integrity of the elements remain more or less intact and a post-hemiplegic disorder of motility, such as athetosis or a focal epilepsy, by agitation of the paralyzed parts, causes the hypertrophy." The article is accompanied by excellent photographs showing the states of hypertrophy.

SURGERY.

Embolism of Superior Mesenteric Artery.—On account of the free anastomosis of the intestinal branches of this artery it has been considered by some almost impossible to cause gangrene from obstruction of one of the smaller branches. It has been definitely proven, however, that this sometimes occurs and there seems to be a special predisposition on the part of the intestinal wall to undergo rapid changes. Experiments have shown that ligation of one of the medium-sized branches causes such a lowering of the blood pressure in the affected area that an almost immediate degeneration begins in the walls of the capillaries and the tissues. In spite of the free anastomosis there seems to be a marked vulnerability of these vessels and a resumption of functions is rarely effected after the circulation has been obstructed for any length of time. J. COLLIER (Med. Chron., August, 1902) reports a case in which rapid gangrene followed embolism of one of the smaller branches (even a single intestinal branch) and offers this example to prove that these vessels are practically "end arteries," so far as the result of embolism is concerned. The blood pressure is so diminished that there is a regurgitation of blood from the portal system into the mesenteric tributaries and a hemorrhagic infarct follows.

Rubber Gloves.—At the present time gloves are in pretty general use throughout this country but are being discarded apparently in Europe, where they first received attention. R. T. MORRIS (N. Y. Med. Jour.,

Nov. 22, 1902) suggests that there are three chief ways in which bacteria reach the wounds of a patient: (1) By being carried from the roots of hair and the deeper layers of the skin where the incision is made through it; (2) by introduction from the surgeon's hands and (3), perhaps more important than any other, from the air. There are some cases in which gloves should undoubtedly always be used, such as diabetic and septic patients. In the latter cases the precautions should be taken for the protection of succeeding patients. On account of the extra encumbrance, induced by the use of gloves, it is believed that the law of compensation works out in this way: that the longer incisions and greater length of time required for an operation with rubber gloves allow more bacteria to fall into the wound than would be carried into the wound by the surgeon operating rapidly and neatly with bare hands, prepared by the best methods and depending upon the germicidal action of the blood serum to destroy any of the bacteria which make their way from the deeper layers of the epithelium of his hands. It is therefore believed that rubber gloves will be largely discarded in the future.

Extensive Burns and Their Treatment.—It is a well-known fact that extensive burns are followed by death more or less rapidly, in accordance with the extent of surface destroyed. H. WEYDENHELD (La Sem. Méd. Nov. 12, 1902) has concluded that the intoxication of the system is due, not to the various poisons secondarily formed within the organism, as is admitted by most authorities, but by poisons formed upon the skin in virtue of the destruction by the burn. He has therefore attempted to cure such symptoms by the removal of the skin with the hope of destroying the source of the poison. He has added to this general plan of the removal of the affected skin the injection subcutaneously of normal salt solution. By these combined procedures he has succeeded in prolonging life in some cases for many days, and in other cases he has entirely cured the patient. According to his view, the removal of the skin must be carried out very shortly after the accident. If delayed, a large quantity of the toxins will already have been absorbed. According to his own experience, he deems that in burns of the third degree, covering more than one-sixth of the whole surface, injection of artificial serum might be enough to prevent a fatal issue. This is not the case when more than one-sixth of the body surface is affected. At the same time it is necessary to at once begin to remove the burned skin and at the same time apply injections of normal salt solution. Naturally, if the burn is less extensive, the chances of recovery are still better.

New Treatment of Varicose Ulcer.—Most methods of treatment of these vexatious ulcers accomplish nothing more than the slow development of scar tissue of little resistance, and do not recognize the fact that the patient cannot, as a rule, be put at rest. LEROY and MAURY (La Sem. Méd., Nov. 5, 1902) have developed the following dressing, which appears to be free from these inconveniences. For a half hour, starch bandages are immersed in a two-per-cent. solution of formalin. These bandages measure 15 feet long and 3½ inches wide. They are then squeezed very dry and plunged into the following preparation: Glycerine, 100 parts; refined white gelatine, 50 parts; oxide of zinc, 40 parts; boiled water, 180 parts. This preparation should be heated over a water bath until it is semi-liquid. The patient is then put to bed and the leg and ulcer is washed with a solution of formalin, and dried very carefully with sterilized compresses. Then the bandages, prepared as described, are wrapped around the leg, from the ankle to the knee. In half an hour the bandages are dry and comprise a kind of elastic boot, which protects

the part in an admirable manner, without the least pain. If the ulcer is large and its discharge abundant, this bandage must be renewed every five days; otherwise, once in seven days. These authors find that a moderate amount of walking, far from being a disadvantage, is advantageous, because it stimulates circulation, and therefore encourages the healing of the wound. Under this treatment, ulcers will heal in from one to eight weeks, with a scar that is strong and soft.

Spinal Anesthesia.—The well-known unfavorable sequelae of this method of anesthesia have led many to relinquish it. KOZLOWSKI (C'blatt. f. Chir., Nov. 8, 1902) describes a new method which he finds very satisfactory and in the main without these disadvantages of securing this form of anesthesia. He soon became convinced that the symptoms were due not so much to the bad effects of the cocaine or tropacocaine, but rather to the amount and kind of fluid injected. In the usage of most operators the menstruum consists of water. Since there is not a less irritating drug than tropacocaine, he concluded that the other factor—the water—was probably the cause of the trouble. He therefore determined to try the result of injecting tropacocaine itself in cerebrospinal fluid. With the very first case he was convinced that this is an easy procedure, rapid and convenient, and that no great difficulties accompany it. A similar procedure was suggested by Guinard, who reports 70 cases in which it was used, consisting chiefly of the concentrated solution of chloride of cocaine in water, one or two drops of which are rapidly mixed with some of the cerebrospinal fluid which has been withdrawn. Kozlowski's method, however, is as follows: He takes a sterilized, dried graduate, containing about 0.05 grams of tropacocaine in powder form. A needle is then driven into the spinal canal, between the second and third and fourth lumbar vertebrae, and the cerebrospinal fluid allowed to drip upon the tropacocaine. After a little shaking the drug mixes itself well in the cerebrospinal fluid, of which five grams are allowed to escape, thus forming a one-per-cent. solution of the tropacocaine without any addition whatever of water. The mixture thus formed is drawn into the syringe and immediately injected into the spinal canal. The tropacocaine which he used is Merck's directly from the bottle, without any special sterilization. Notwithstanding this, it has not developed any undesirable symptoms. Apparently the powder, at it comes from Merck, is already sterile. If it is desired to sterilize it again, hot air might be used or preferably an alcoholic solution made of it and permitted to evaporate slowly in a glass dish in order to form the crystals again.

Congenital Inguinal Hernia.—During this present year Arnschütz described a new method for operating upon scrotal hernia in children. For some time prior to the published description of this method P. KREMIN (C'blatt. f. Chir., Nov. 15, 1902) has been using the following method: An incision exposes the inguinal canal, being placed directly over it. After careful deepening of this incision, the sac of the hernia is opened and freed from all attachments to fascia up to its neck. After its contents have been carefully reduced, the neck of the sac is closed as high up toward the abdomen as possible by a purse-string suture, preferably of silk. He now twists the sac of the hernia for the entire distance between the upper pole of the testicle and the neck of the sac, so that the surface of the serosa, which formerly was innermost becomes outermost. He secures the sac in this position with a few stitches. The sac of the hernia together with the transversalis fascia and the cremasteric muscle and fascia are thus arranged in a cylindrical band, whose inner surface is the proper fascia of the hernia, and whose outer surface is the

serosa itself. From this point on the other steps are the same as in the typical Bassini operation.

Acquired Dislocation of the Hip in a Child.—Dislocations of the hip of traumatic origin are rare in young children; therefore, the following example, noted by W. MACDONALD (Lancet, Nov. 29, 1902) may be worthy of note. On August 16, 1901, a female child, aged two years and eight months, was brought to the author by her mother, who stated that the patient had fallen that morning, and, in consequence of the fall, was unable to walk. Further questioned, the mother said that her three children were playing in a bedroom with a miniature theater when one of the figures dropped from the stage, and the child, in rushing across the room to pick it up, tripped over her brother's foot and fell upon the floor. The brother raised her and set her on her feet, but found she could not stand. The mother, finding her in this condition, carried her straight to the author's house. Although a bright, healthy little girl, she was much frightened, and resisted examination, so was sent home and seen later. The objective appearances were marked distortion of the left hip and undue prominence of the gluteal region. The limb was abducted and rotated inward, the thigh was bent slightly upon the abdomen, and the leg was flexed upon the thigh. The lower end of the femur crossed the lower third of the opposite thigh and the ball of the left great toe rested upon the instep of the right foot. There was, roughly, about one and a half inches of shortening, although this observation was not verified by measurement. The left trochanter lay well above Nelaton's line, and on rotating the limb, the head of the femur could be felt considerably above the acetabular ridge. From these characteristics there was no doubt that a dislocation of the head of the femur on to the dorsum ilii existed. Under chloroform, reduction by manipulation was attempted, but failed. Having, therefore, instructed the mother to fix the pelvis, the thigh was flexed at right angles to the abdomen, and slow, steady traction made in an upward direction. The limb was then adducted and rotated inward, and the caput femoris slipped into the cavity of the acetabulum with a distinct click. The limb was put up in a Liston's long splint and secured by a spica bandage. At the end of four days the splint was removed and the patient was permitted to lie on a sofa until the eighth day, when she was allowed to go about and it was found that her recovery was complete. With regard to the relative frequency of dislocations of the hip in children, the author has no statistics to offer, but finds that Erichsen tells of two cases which he met with in his own practice. In one of these—a child aged one-and-a-half years, the head of the femur was dislocated on to the os pubis; in the other there was dorsal dislocation in a boy six years old. Erichsen also mentions that Kirby had seen a case of dorsal dislocation in a child aged three years, and that Madge had observed a similar case in a child aged three and a half years, while Travers had a dislocation of the hip in a boy five years of age.

Traumatic Peritonitis.—It is extremely probable that when a blow on the abdomen, which does not cause perforation, is followed by peritonitis, that the inflammation is due to rupture of some hollow viscus and escape of its contents. If this rupture be large, the peritonitis is rapidly fatal, unless, by a laparotomy, the wound may be dealt with promptly. If the tear is minute, there will be very little extravasation, and perhaps only a localized peritonitis. The severity of the peritonitis depends chiefly upon the micro-organisms which fill the cavity. If these are numerous and virulent, the outlook is grave; but if few in number and comparatively

harmless, the resulting peritonitis will be less acute, and perhaps serous in character. In the following case the rupture must have been small, although impossible of discovery at the operation, the bacteriological intervention must have been comparatively attenuated. The case concerned a traumatic peritonitis, followed by two separate attacks of intestinal obstruction. Three celiotomies in less than three weeks, with recovery, is reported by C. F. M. ALTHORP (Lancet, Nov. 29, 1902). A boy, aged eleven years, was admitted into the Bradford Royal Infirmary on May 14, 1901, with abdominal symptoms. While going home from school the previous afternoon, he fell and struck his abdomen against a gate-post. He walked home (a short distance) and was put to bed, as he was suffering from abdominal pain, and was blue and cold. He was sick several times, and next morning a physician saw him, and sent him to the Infirmary. He was in perfect health before the accident. On admission the abdomen was slightly distended but fixed and board-like. Nothing was made out by palpation. There was dullness over the whole breadth of the lowest three inches of the abdomen. Liver dullness was present. The tongue was furred. The temperature was 100° F. and the pulse was 100. A catheter was passed and normal urine was drawn off. A normal movement followed an enema. The boy did not look so ill as would have been expected had there been any serious visceral lesion, but as there were undoubted peritonitis and effusion, it was decided to explore the abdomen. An incision was made above the pubes, when a large quantity of yellow, flaky fluid escaped. The appendix, cecum, bladder, etc., all appeared to be normal. A sponge passed up toward the liver brought away small pieces of lymph, so another incision was made above the umbilicus, through which the liver, stomach, gall-bladder and duodenum were examined, but no lesion was found. The abdomen was mopped clean and the wounds were closed without drainage. The boy did well for 10 days, and then complained of abdominal pain. The bowels refused to act and he began to vomit. On the twelfth day the vomit became intestinal and the lower wound was laid open. A coil of gut was found adherent to the abdominal wall immediately to the right of the incision. The adhesion was freed, and as no other cause of obstruction was found on hasty exploration of the abdomen, the wound was sutured. The symptoms were removed at once, the bowels being moved within two hours of the operation, and again the boy did well until the seventeenth day, when symptoms of obstruction again appeared. The lower wound was again laid open, and the same coil of gut was found adherent as before, but much more densely. In freeing it the intestine was somewhat injured, and consequently some six inches of it were resected, a Murphy button being used. The boy made an uninterrupted recovery from this operation, the button was passed on the seventh day after the operation; and after a lengthy stay in bed to allow the scars to become firm he left the infirmary in good health on July 23. He was seen on June 5, 1902, looking fat and well.

Varicose Veins.—The frequency with which varicose veins occur in the lower extremities, especially in women, makes good knowledge of the various methods of treating them a necessary matter of common property for all who would succeed in medicine. The non-operative treatment, comprising hygienic, manual and mechanical measures may be entirely excluded excepting in cases of very mild degree. Such are, unfortunately, precisely the ones which do not seek relief. The condition is usually neglected until the only possible aid is derived from operation. Concerning this W. H. BENNETT (Lancet, Nov. 22, 1902) gives the following points: Localized masses of congenital varix, cystic dilatations

and aberrant varicose veins in dangerous places (from point of view of liability to injury) should be dissected out. In the operative treatment of general saphenous varix the main point to bear in mind is that no matter how exaggerated the condition in the leg may seem, the cure or mitigation of the condition can only be accomplished by the removal of a portion of the long saphenous vein, high up in the thigh, the nearer the saphenous opening the vein is interrupted the better, and in no case should the interruption be below the point at which the large posterior tributary from the inner and back part of the thigh joins the internal saphenous. The author advocated and performed this operation as far back as 1883. No interference with the vessels in the leg is necessary, but there is no doubt that the improvement of the general condition is more rapid if three inches or thereabouts of the saphenous are removed immediately below the knee. The author invariably does this after the high interruption has been effected. When well-defined cystic dilatations exist in the inner side of the knee, it is his practice to remove the whole of the saphenous in the thigh, from the saphenous opening downward, stopping short just above the knee. When this is done the resection of the vein below the knee is unnecessary. As a practical detail in operations of this kind, it will be found advantageous to avoid leaving a scar along the inner side of the knee-joint, as such scars are liable to remain sensitive and irritable for some time. What has been said in regard to its being unnecessary to interfere with the veins in the leg after the high operation applies to ordinary cases in which the sole object is the arrest of the increase in the varicosity or to diminish or prevent complications arising in connection with it. In the external femoral set of varicose veins operative measures are only useful when the communication with the saphenous veins below is free. In such cases removal of from four to six inches of the more prominent portion of the varix on the outer side of the thigh is followed by general improvement, and the author is of the opinion that the operation in these cases, when occurring before marriage, ought always to be recommended, as the consequences arising from child-bearing are undoubtedly less severe if they are not entirely prevented, by the treatment. Much remains to be said upon this part of the subject. The author says he will remind us that before submitting a patient to the operative treatment for varix it is of extreme importance to be sure that the symptoms complained of are due to the varicose veins and not to some other cause.

Operative Treatment of Pulmonary Tuberculosis.

—The objections against operative procedure in advanced pulmonary tuberculosis are many. A. LANDERER (Münch. med. Woch., Nov. 25, 1902) says that a good result can only be expected where there is a single, well-encapsulated cavity, or several of these, situated closely together and communicating with each other. Generally only a few of the cavities can be opened and drained, the others are not reached, since they are often not diagnosed. Even if the operation is a success, persistent fistulae remain and part of the sputum is always voided through these. The wounds do not close and the cavities persist even after they have been incised, owing to the dense walls of the cavity, which will not fall together and obliterate the space. Hence the author recommends thoracoplasty with multiple rib-resections. Advanced cases are not good objects, since they do not stand the narcosis or the loss of blood and bad after-effects may develop after weeks, in the form of exacerbations of the process or a miliary tuberculosis may set in. Yet all of the author's cases did well. The ribs must be resected as rapidly as possible and the space laid bare should exceed the size of the cavity by

at least one rib. The region over the heart and great vessels should be avoided on account of the pulsating scar which may result. A vertical incision is preferred and this may be converted into an L or T shaped one, if necessary. During after-treatment it is important that the secretion of the cavity is sufficiently expectorated. Hence small doses of morphine or even emetics may be given. The operation is not indicated in acute tuberculosis; the most suitable cases are the stationary or slowly-progressive ones. Slight fever is no contraindication. Good results have been obtained especially in tuberculosis of the lower lobes, since internal treatment here has so little effect. Improvement follows two to three weeks after the operation. The mechanism of the cure depends upon the removal of part of the rigid wall, so that the cavity can fall together. Hetol should be given before and after operation, to assist cicatrization.

OBSTETRICS AND GYNECOLOGY.

Surgical Treatment of Uterine Cancer.—Surgical intervention is worse than useless in uterine carcinoma when it is diffuse, in the opinion of L. M. Bossi (Gazz. Osped., Nov. 16, 1902). The author lays down the following rules for operation: Hysterectomy is advisable in carcinoma of the cervix when the disease is limited to the portio vaginalis; and the vaginal route is then to be preferred. In carcinoma of the body of the uterus, the operator should, under chloroform narcosis, ascertain whether or not the tumor is limited to the uterus, in which case abdominal hysterectomy should be performed, but if there is the slightest involvement of the adnexa, surgical intervention is of no avail. Bossi utters a note of warning against the practice of operating upon the cervix in pregnant women, under the mistaken impression of the existence of cervical carcinoma; this disease being of the rarest occurrence in the pregnant, as shown by the fact that out of 20,000 pregnant women examined in the dispensary clinics of Genoa and Novara, but one case of carcinoma of the cervix was seen. He believes that many lesions, diagnosed as carcinoma, are in reality but vegetating ulceration, which are not of infrequent occurrence upon the cervix of the gravid uterus. Cauterization of such vegetations with carbolic acid and alcohol in equal parts, about every five days, usually suffices to bring about complete healing of the lesion.

Repeated Ectopic Gestation.—That a second tubal pregnancy is not a great rarity is shown by a collection of over 90 well-authenticated cases by B. H. WELLS (Med. Rec., Nov. 22, 1902) who also reports the history of a patient upon whom he operated for a ruptured tubal pregnancy and in a little over one year later he made a second abdominal section for the removal of the other gravid tube. The literature upon this subject seems to be very meager or rather the information which would be helpful in settling several etiological questions is lacking on account of the operators' carelessness in not thoroughly examining the other tube at the time of operation and submitting the specimens to careful microscopical examination. Of the various theories which have been advanced relative to the causation of ectopic gestation the author believes that the most potent factor probably results from a change in the epithelial lining of the tube following upon a mild infection of that duct and causing an increase in the time occupied by the passage of the fertilized ovum through the tube.

The Necessity for the Interruption of Pregnancy in Phthisical Workingwomen.—Eighteenth century writers regarded pregnancy as an advantage to phthisical women; it was supposed that if two women were

suffering from pulmonary tuberculosis, the one of them who became pregnant was likely to live longest. Modern writers have wholly abandoned this view, and C. HAMBURGER (Berl. klin. Woch., Nov. 24, 1902) declares that it is now universally conceded that pregnancy and labor influence unfavorably the course of phthisis, because of their excessive demands upon the vitality of the woman, in virtue of which her susceptibility to tuberculosis is increased. The logical inference is plain: tuberculous women must not have children; if pregnancy occur, it must be interrupted in the interest of the woman. This inference, says Hamburger, is not frankly made as often as it should be. Only recently Kossmann has declared that "pregnancy is only to be interrupted when failure to interfere would inevitably result in the death of the mother during gestation and so cause the death of the fetus as well." Hamburger remarks that the problem must be approached according to the social class of the individual, because the demands during pregnancy upon the strength and vitality of women belonging to the working class are far greater than upon those of the more fortunate classes. The mortality from tuberculosis increases as the family income decreases. Hamburger therefore undertakes to support his position by giving a series of pictures of the actual life of pregnant workingwomen, showing how many children they have, what their incomes are, how many persons live in one room or sleep in one bed, and hence what probable outcome of tuberculosis in such circumstances is likely to be. Von Leyden and others emphasize the especial danger of repeated pregnancies occurring at brief intervals in phthisical subjects, and it is precisely among women of the working classes that rapidly repeated pregnancies occur. The treatment of tuberculosis in poor women is at best a difficult task. Its difficulties become overwhelming when pregnancy occurs. Good nourishment is indispensable; but during pregnancy there occur vomiting and stubborn anorexia. Workingwomen are denied good air, bodily rest, concentrated foods, careful nursing in confinement, rest after confinement. Hamburger considers the dangers of abortion, but does not regard them as serious in comparison with the greater risk of prolongation of pregnancy. It is argued that the probability of renewed conception and the necessity for renewed interference make any interference inadvisable. He replies that it is the duty of the physician to instruct phthisical patients as to the dangers of renewed conception. To those who hesitate to destroy the fetus because of the possibility of its developing into a healthy human being the writer points out that so far as the children of the poor are concerned such hopes are almost idle, because in this class of society, isolation from the mother is an impossibility and hygienic surroundings cannot be provided. For all these reasons he believes that pregnancy occurring in phthisical workingwomen should be interrupted; its interruption is demanded in the interest of the mother, of the family, of the community.

Importance of a More Radical Operation in Carcinoma Cervicis.—The studies of J. A. SAMPSON (Bull. J. Hopk. Hosp., Dec., 1902) show that carcinoma of the cervix may form metastases in the small lymph-nodes along the vessels and these nodes may have a diameter of not over one to 1.5 mm. Owing to this small size it may be impossible to feel these either in the parametrium or along the pelvic vessels and they may be discovered only accidentally or by cutting serial sections. In every case of hysterectomy for carcinoma of the cervix, the lymphatics along the pelvic vessels and also the parametrium should be removed en masse with the uterus, because an enlarged gland is not neces-

sarily an invaded gland and cancer may be present in very small lymph-nodes which can not be palpated; therefore clinically it is impossible to always diagnose cancerous lymphatics. Should the ureter be adherent to the parametrium, the lower portion of it should be sacrificed and all the tissues from cervix to pelvic wall removed for if the ureter is dissected free the disease will probably return and a uretero-vaginal fistula will probably occur from injury to the blood-supply of the ureter. Following out these principles the steps of the operation recommended by the author are: (1) A preliminary catheterization of the ureters with silk bougies, before the patient is narcotized; (2) after the patient is narcotized she is placed in the perineal position and a long proctoscope is inserted into the rectum in order to get rid of any gas or fecal matter; (3) a row of interlocking sutures is now placed around the vagina, three centimeters below the growth. These sutures are passed with a large, curved needle, include large masses of tissue and extend laterally as far as the needle will permit, while a finger in the rectum prevents their being passed too deeply posteriorly. After all these sutures have been passed, they are tied; (4) a retention catheter is placed in the bladder. (5) the patient is now placed into the Trendelenburg position and the abdomen opened from physis to umbilicus. After packing back the intestines with gauze, the ovary on the side on which the ureter is to be resected, is grasped by a pair of forceps and pulled downward and outward so as to make taut the ovarian vessels and peritoneum covering the iliac vessels. The peritoneum is now split below and parallel to the ovarian vessels as high up as the origin of the internal iliac artery. Beginning at the origin of this, he dissects downward, removing the fat and lymphatic vessels from along the iliac vessels, thus exposing the branches and removing the tissue en masse. One should never dissect upward for (a) the instrument may enter the angle between the branches of the iliac vessels and may tear off one, (b) by dissecting downward, the fat and lymphatics can be removed en masse, (c) it is always safer to work from a more dangerous to a less dangerous region. After exposing the vessels down to the uterine artery, the ovarian vessels and round ligaments are cut. The uterine artery is tied twice at its origin, taking care to include in the ligature the vaginal artery, should it arise from the internal iliac, but not the superior vesicle. (6) The other side is treated in a similar manner, if both ureters are to be removed; if not, the exposure of the vessels is the same and the removal of the lymphatics may be similar, and the uterine vessels are tied and cut at their origin, and then lifted up and dissected away from the ureter, taking care not to injure its outer, vascular coat. (7) The uterus is now pulled upward and the bladder dissected free from the cervix and not the cervix from the bladder, for in the former, while there is greater danger of injuring the bladder, there is less danger of cutting into the diseased cervix. The dissection is carried on down to the ureters, and, if thought best, one or both are cut off close to the bladder. (8) The ureter should be amputated just above the place where the uterine artery crosses it, and all the tissues lateral to the cervix, including the lower portion of the excised ureter, may be dissected from the pelvic wall. If the lower end of the ureter is not to be sacrificed, the parametrium is dissected free mesially to the ureter. (9) The uterosacral ligaments are next cut, and the rectum is dissected from the cervix and vagina. (10) The dissection is now carried on around the growth on all sides and down the vagina to the preliminary catgut ligatures. The gaping opening of the large veins can be seen in

these cases, some thrombosed and others empty, perfectly controlled by the preliminary catgut sutures. Wertheim's clamps are now applied to the vagina and the vagina is cut below them and the tissue removed. (11) The uretero-vesical implantation. The operation at present takes $2\frac{1}{2}$ to three hours but is justifiable when one considers that after the ordinary operation, recurrences were noted in 87.7 per cent., with greater experience no doubt the operation will be done more rapidly and thus the mortality considerably reduced.

PHYSIOLOGY.

Physiological Observations in a Balloon.—Two aeronautical expeditions were undertaken by H. v. SCHROETTER and N. ZUNTZ (Pflüger's Archiv, Nov. 5, 1902) for the purpose of investigating certain changes in the blood and in the respiratory exchanges of gas. They found that after a stay of 10 hours at an altitude of 5,000 meters the morphological constitution of the blood is not changed. The pulse and the blood-pressure remain unchanged. The authors employed a method invented by Hénocque for determining the rate at which the tissues reduce oxyhemoglobin. By means of a pair of clamps the capillary circulation in the mucous membrane of the lip was isolated from the general circulation; light reflected from the surface of the lip and examined by means of the spectroscope, showed the spectrum of oxyhemoglobin; the bands peculiar to the latter disappeared as soon as the oxyhemoglobin was reduced by the tissues. The French observers found that the time necessary for the disappearance of the oxyhemoglobin bands was diminished at a high altitude, which indicated an accelerated reducing activity of the tissues. The authors, however, found that no change takes place. They also discovered that the ventilation of the lungs is increased, but not as the result of the diminished pressure of the air, really as the result of the action of the other meteorological factors. A qualitative change in the oxidative processes, consisting in an increase in the respiratory quotients (obtained by dividing the amount of carbon dioxide exhaled by the amount of oxygen inhaled, in one minute), begins at the height of 4,000 meters. The subjective manifestations produced by scarcity of oxygen do not go hand in hand with its objective expression as measured by the respiratory quotients. In individual experiments the slight increase observed in the income of oxygen, is explained by the greater respiratory activity produced by the action of other muscles, by shivering and uncomfortable postures.

The Determination of the Nitrogenous Constituents of the Urine with Corrosive Sublimate.—The growing importance of the knowledge of the mutual relations of the nitrogenous urinary constituents, according to E. FREUND and R. FELLNER (Ztschft. f. Physiol. Chemie, Oct. 31, 1902), left to be desired a method whereby the amount of the extractive nitrogen might be determined in the form of a precipitate. While corrosive sublimate has been known as a precipitant for uric acid and the xanthine bases, and has been largely used, particularly for the determination of the latter, yet this substance in watery solution has failed in the determination of kreatinine and urea. The authors have finally succeeded in precipitating the nitrogenous constituents totally by treating urine with a sufficient quantity of a saturated watery solution of corrosive sublimate and with an excess of sodium carbonate.

The Passage of Albumin through the Placenta.—The discovery of the oxyhemoglobin spectrum in the venous blood of the umbilical vein by Zweifel was, according to A. ASCOLI (Ztschft. f. Physiol. Chemie, Oct. 31, 1902), the first demonstration of the passage

of a normal constituent of the blood through the placenta, and the old controversy over the theory of Mayou that the placenta is the respiratory organ of the uterus, was finally settled. Harvey promulgated the view that the placenta, like a digestive organ, elaborates the nutriment of the fetus, and Claude Bernard attributed to the placenta a glycogenic function. Of the normal blood constituents finely emulsified fat penetrates through the placenta with as much difficulty as white blood cells; on the other hand, water sodium chloride and sugar can pass through the placenta into the fetal blood. Whether albumin can pass through unchanged or in the form of peptone, or whether it is formed synthetically in the fetal organism, has not been proved. The author set out to investigate this problem, availing himself of the recently discovered biological reaction for albumin, i.e., the production of specific precipitating bodies in the blood by the injection into the latter of solutions of various forms of albumins. He arrived at the following results: If large quantities of heterogeneous albumins be injected into the subcutaneous cellular tissues of pregnant animals, the former will be detected in the maternal and often, at the same time, in the fetal blood. If the reaction in the maternal blood is moderate or slight, as is the case when small quantities are injected or when large quantities are administered per os, the reaction in the fetal serum will be usually negative. In all cases there is a decided difference in the strength of the reaction between the maternal and the fetal sera; in the former it is always stronger than in the latter. After the administration of large quantities of egg albumen per os, the presence of this substance can be demonstrated in the blood of pregnant and parturient animals but not in that of the fetus. This is not a manifestation of any inhibitory action of the fetal serum; it is rather to be considered as a particular function of the placenta, probably of the nature of a digestive act.

The Origin of Sarcom-melanin.—The large number of brown and black pigments included under the group called melanotic, can not, according to L. v. ZUMBUSCH (Ztschft. f. Physiol. Chemie, Oct. 31, 1902), be considered as forming a uniform class. The early investigators taught that all bodily pigments are derived from the coloring-matter of the blood. Later it was maintained by Dressler and then by Berdez and Neucki that this supposition can not hold. The latter believe that the pigment isolated by them from human melanotic sarcomata, to which they give the name phymatorhusin, is formed from albumin by a peculiar condensation. This view has been opposed by Möerner who considered phymatorhusin as a decomposition product, attributing to the boiling in hydrochloric acid its freedom from iron and its low content in nitrogen. From the iron content of his preparations this investigator concluded that melanin is a derivative of hemoglobin, although he admitted that the high percentage of sulphur is hard to explain. A noteworthy contribution to this subject is found in the work of v. Fürth and Schneider, "On Animal Tyrosinases and Their Relations to Pigment-formation." In this work the transformation-product obtained from tyrosin by the action of tyrosinase is considered identical with melanin. Whether tyrosinase is present in the human body or whether hemoglobin can, under certain conditions, play the rôle of such a ferment, is yet to be proved. That in a severe disease like melanosis a ferment not provided in the normal organism, should arise, is hardly acceptable; a weak basis for this supposition might possibly be found in the contagiousness of these growths as occasionally assumed. Starting with the supposition that hemoglobin and sarcom-melanin are

related to each other, the author conducted a series of parallel researches to determine the binding of sulphur in hemoglobin on the one hand and in sarcom-melanin on the other, starting out with the inquiry whether the discovery of cystin in sufficient amount might not quickly lead to a solution of the problem. He found that cystin is neither present in hemoglobin nor in melanin. Inasmuch as the sulphur-content, which in different preparations of melanin, especially phymatorhusin, is variable, is sometimes quite large, and inasmuch as in this respect these bodies differ markedly from hemoglobin, it seems remarkable that in both classes of substances no cystin-complex is to be found. In reference to the melanin investigated by the author, he considers it not improbable that this body is derived from hemoglobin by the action of some fermentative agent.

The Splitting of Albumin by Bacteria.—How far the splitting of albuminous bodies by bacteria is analogous to the splitting produced by chemical agents, e.g., mineral acids, or by digestive juices, is not known. A. E. TAYLOR (Ztschft. f. Physiol. Chemie, Oct. 31, 1902) undertook the solution of this problem in a series of experiments to determine the action of different kinds of bacteria in proteid bodies. He reports the results of two investigations with casein as follows: It is not markedly split by the *Bacillus coli communis*, but is energetically split and decomposed by *Bacillus proteus vulgaris*; among the decomposition products are found with the greatest probability histidin and lysin.

The Effect of Sodium Chloride and Calcium on the Conductivity of Nerves.—As the result of immersing nerves in the so-called Ringer's solution, i.e., a normal physiological salt solution containing traces of calcium salts, H. RIETSCHEL (Pflüger's Archiv, Nov. 5, 1902) found, in agreement with Gotch and Burch, that the conductivity is diminished. The author employed the interesting method of using the negative electric variation of the muscle as an index of the conductivity of the nerve, which method has the following advantages over the employment of the muscular contraction as an index: the curve is a steeper one and the mechanical latent period of the muscle is done away with.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

New Stain for Diphtheria Bacilli.—A modification of the Pioskowski stain to readily detect Klebs-Loeffler bacilli in fresh specimens from membranes or from cultures has been discovered by W. G. SCHAUFFLER (Med. Rec., Dec. 6, 1902). By this method the pole-stained bacilli of true diphtheria may be differentiated from the uniformly stained and smaller pseudo-diphtheria germs and may be so easily used that its importance is greatly enhanced. The solutions employed to make the stain are as follows: Filtered solution Loeffler's methylene blue 10.0 c.c.; filtered solution pyronin (Grübler's) 1.5 c.c. (pyronin 0.5 grams aquæ distill. 10.0 c.c.); three per cent. HCl alcohol 0.5 c.c. (absolute alcohol 97.0 c.c., HCl [25 per cent.] 3.0 c.c.). The specimen is prepared as usual and covered by the above solution for one minute. It is then washed in running water, dried and mounted in Canada balsam. The above method will show the bodies stained blue, while the poles are a bright ruby red. The pseudo-diphtheria bacilli take on only the blue color. The bacilli of Asiatic cholera and of the plague, when stained by this method, show granular bodies in their interior, but these bodies are not metachromatic like those of diphtheria bacilli just described.

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EDUCATIONAL REFORM IN MEDICINE.

PROF. OSLER faced a crowded hall at the Academy of Medicine a few weeks ago when he rose to open the discussion upon the reform of medical education in the United States. Representatives of New York schools and others interested in medical education in the metropolis formed the bulk of the audience, but New England and even Canada sent noted men to participate in the debate. This distinguished gathering of medical education was first of all a tribute to the professor of medicine at Johns Hopkins University; but it was also something more. It was the reflection of a widespread feeling of unrest, of the sense of practical aims only half accomplished, of the consciousness of educational ideals smothering beneath the heavy blanket of a regrettable opportunism. For it has come to be generally appreciated that the best work cannot be done so long as our medical schools fashion their methods to fit cramped resources or to correspond with the interests and convenience of individual professors.

It seems to be Prof. Osler's belief that when the student has completed his survey of the institutes of medicine and is ready to enter upon the consideration of disease proper, he should no longer be subjected to general lectures—that

from this time on there should be no teaching without a patient as a text. First and foremost the student should be trained in the use of his own eyes and ears and hands in actual clinical observation. Probably no one questions the importance of this kind of teaching. The method proposed is so familiar in theory, and in practice so common, that its discussion at first blush seems a work of supererogation. But if one observes that it is proposed to make bedside and dispensary practice not a leading feature merely, but the beginning and the end of all third and fourth-year teaching, it becomes clear that what is intended would really be, for most medical schools in this country, a radical reform.

The discussion which followed Prof. Osler's address revealed a wide difference of opinion as to the expediency of his plan for schools other than Johns Hopkins; there a relatively high standard of scholarship and mental fitness prevails among the students and the school and hospital, for teaching purposes, are one. The debate at the Academy really occupied itself with two distinct questions; one of these was, What is the ideal method of teaching clinical medicine? the other, What is the best method of teaching large classes at the present time? In dealing with the first of these two questions we must ignore certain practical problems which are completely bound up with the second—for example, lack of hospital facilities, imperfect control of hospitals in which teaching can be carried on, etc. Another difficulty, which merited greater emphasis in the conference at the Academy, is the lack of teachers who can give to their work in the schools the capacity, the inclination, and the time which its proper performance demands.

There are plenty of men in New York who are willing to teach clinical medicine. How many competent men are willing to make this teaching their exclusive life-work? In most other departments of university work instruction is given by professional teachers; in clinical medicine instruction is given by private practitioners. The professor of chemistry or physics in the scientific school may be afforded leisure and facilities for private research, but he is not encouraged to devote three-fourths or nine-tenths of his time to private business enterprises. May not there be some truth in the statement that the medical school will not be able to do justice to its students until it has first constructed the proper footing for its teachers? We should not like to see the private practitioner excluded entirely from

the medical school, but we should like to see, in every such school, a certain number of earnest workers devoting their lives to clinical research and clinical teaching. The teaching of medicine must be made a career, in and of itself. The school which first organizes its work upon this basis will attract to itself men of genius from all over the country and will give a powerful impetus to the cause of educational reform in medicine.

For New York the foundation of a medical school according to the foregoing plan seems just now an iridescent dream. If current report may be accepted, however, Chicago is at least one step nearer the goal. We are informed that the scheme for the reorganization of Rush Medical College contemplates the establishment of a series of college hospitals, medical, surgical, gynecological and obstetrical, and the endowment of clinical professorships which will be held by men who will devote their lives to the work of the college and its hospitals.

EXCURSIONS IN NEW YORK MEDICINE.

UNDER the title *Excursions in Old-Time New York Medicine*, we begin a series of papers on interesting points in the history of medicine in New York city and State that will be continued at more or less regular intervals during the year. In turning over into the new century medical history leaves behind it in the nineteenth century many interesting details in the development of scientific and practical medicine that it would be too bad to lose sight of entirely. Our predecessors in the profession have been eminently worthy men, the example of whose lives and labors can scarcely fail to be a stimulus and a guide for the present generation of medical men. Their unselfish devotion to their work under trying circumstances, their faithful attention to the scientific side of medicine, where there was little to encourage investigations and research, their evolution of a high spirit of professional honor in conditions that seemed little likely to foster ideals, all must remain as a precious legacy for the future.

The details of their lives must not be allowed to perish then. We have come to a time, however, when unless special attention is called to some of the biographical and bibliographical monuments that mark important passages in the past much precious historical material may be lost because of failure to recognize its true value. It is mainly with the idea then of recalling atten-

tion to salient features of New York medical history and their relation to the general history of the city and its great men that we begin the publication of this series of articles. We hope that the interest of the subjects themselves will besides prove ample justification for the brief renewals of the memories of a past that we may all well be proud of. We cannot hope entirely to escape falling into errors of detail. For the correction of these we shall be grateful to correspondents as well as for supplementary details on occasion that may add to the significance of the subject treated.

The series of papers opens very naturally with an article on Dr. John W. Francis, whose book on "*Old New York, or Reminiscences of the Past Sixty Years*" has been and will ever remain the most fruitful source of material for the medical history of New York city. Dr. Francis was besides one of the most prominent of the early medical journalists in New York city. In connection with Dr. Hosack, his preceptor, he took part in the editing of the *American Medical and Philosophical Register*, a journal of medicine and science, while still a medical student. In 1822, with Drs. Beck and Dyckman, he helped in the editorial management of *The New York Medical and Surgical Journal*. He was the contributor on American topics to Dr. Brewster's (of Edinburgh) *Cyclopedia*. The first graduate of the New York College of Physicians and Surgeons, the second president of the New York Academy of Medicine and a typical old-time practitioner of medicine who won the enduring respect of his colleges, Dr. Francis may well be taken as the type of the honorably successful medical men of the first half of the nineteenth century. For the intimate relations he enjoyed with all his noteworthy English and American contemporaries we must refer our readers to the sketch of him in this number.

THE MASTER OF THOSE WHO KNOW.

ON December 9, 1852, a certain candidate passed his examinations and became a Fellow of the Royal College of Surgeons. He hailed from Essex and his name was Joseph Lister. For the men who have graduated in medicine and surgery since the thorough establishment of the revolutionary changes introduced by this same Joseph Lister, there is no better or more instructive reading than the Jubilee number of the *British Medical Journal* (Dec. 13, 1902).

It is difficult to gather from that most interest-

ing issue the best, because there is nothing in it which does not belong in this category and it is impossible to allow such a publication to pass without pausing to praise it.

In his introduction to the Bradshaw lectures, Howard Marsh, speaking of the poet Gray, said that "he alluded in trenchant phrases to those who shut the gates of mercy on mankind, whereas "Lord Lister has done more than any living man to throw them open." "Always too busy in his own great work to seek for recognition, his cup became full, and a few months ago he stood by and saw his principles turned to account by Sir Frederick Treves, who averted the imminent peril which beset England's King."

The original contributions in the number are from men of prominence from the whole continent of Europe. Professor Ernest Von Bergmann, of the University of Berlin, in contributing the leading article says that without the principles of Lister his own work, so fundamental and so authoritative, on excision of the tongue and larynx, could never have been thought of, much less perfected.

Dr. Lucas-Championiere, surgeon to the Hotel Dieu, Paris, said that Lister was a direct follower of Pasteur and that like Pasteur he had been fortunate in living long enough to see the glorious outcome of his marvelous work. Lister gave a scientific basis to surgery. He placed it on established truths. He swept away that uncertainty in which the greatest surgeons up to that time had left it. He was inspired by the work of Pasteur, but the wonderful edifice which he created was purely his own. Modern surgery and medicine could no more exist without Lister to apply the ideals of Pasteur than a modern great building could be erected without the practical architect and construction engineer.

From Italy, Francesco Durante, Director of the Surgical Clinic at the University of Rome, contributes observations on Cerebral Localizations in which he concludes with a glowing tribute to Lister.

From Denmark Oscar Bloch, professor of Clinical Surgery in the University of Copenhagen, writes that he could illustrate to his class the wonderful achievements of surgery and their absolute dependence upon Listerism in no better way than by showing a case of compound fracture. "Think, gentlemen," says this eloquent Dane, "not of the countless human lives which the great master has saved nor of the amount of suffering which he abrogated, because such thoughts

are beyond your ken. I ask you to consider only subjects within your grasp. Picture, if possible, the number of arms and legs which have been saved by the application of his principles." Prior to Lister, two-thirds of all compound fractures were fatal. Indeed, so generally was this recognized that the invariable rule was to amputate at once. This would have created a pauper in the case of the man whose arm I have just shown you."

From Breslau, Von Mikulicz-Radecki writes: "I have been asked to contribute words in honor of Lord Lister. Where should I begin and where end? The whole development of surgery is one long hymn in his honor and no page of modern surgery can exist without reference to him. He who would worthily celebrate Lister must consider gynecology, obstetrics, pathological anatomy, and bacteriology, in short all of medicine as well as surgery. When in the year 1875 I became assistant to Billroth, the open treatments of wounds still prevailed at his hospital. In the morning an operation was practised upon the cadaver,—in the afternoon upon a living person on the same table. The same sponges, the same instruments, the same hands, all unwashed were used for both purposes. Truly the hands were washed well after the operation, but before, it was considered a superfluous luxury."

Not the least charming among these various contributions is one by Thomas Annandale, professor of Clinical Surgery, Edinburgh University, who writes with delightful simplicity of the early days in Edinburgh. It was here that under the stimulus of his devoted friend and father-in-law, Professor Syme (see London Letter, Dec. 13, MEDICAL NEWS), who among all the great surgeons of the day was the only one to recognize the value of Lister's efforts, the young assistant was given the encouragement necessary to carry on his work. It must not be forgotten nor lost sight of in discussing the great work of Lister that his wonderful mind and marvelous genius were brought to bear in unraveling many minor problems. Unfortunately very little of his purely surgical work has been published, but Sir Hector Cameron ascribes to him the priority in clearing out the axilla in operations for carcinoma of the breasts. He it was who first wired the fractured patella, incised and drained psoas abscesses, blood cysts and housemaid's knee, and to him we are also indebted for the revival of the operation of suprapubic cystotomy. These things in themselves would have made many men famous but

were looked upon by Lister merely as the natural outcome of the application of his principles.

In military surgery we have but to view the reports of our own Nancrede and Senn of the Hispano-American War to see how profound has been the change. In 1864 every invaded knee called for immediate amputation; every opened hip proved fatal. How different it is to-day! Lister's methods have the simplicity which so often characterizes great inventions and great characters. Most of the discoveries that experimental physiology has achieved are absolutely traceable to Lister's work. What, without him, should we know of the offices of the liver and the process of urea formation in the body,—of the secretory innervation of the stomach,—of the balanced relation between various food stuffs and the character and quantity of the digestive juices they excite, of the degree of efficacy of the supplanting of one nerve by another, of the indispensable importance of the pancreas to the body's chemical processes, of the phenomena environing the action of the ductless glands.

Lister, the man, was not less than Lister the scientist. No teacher probably exerted such an influence for good upon his pupils. They revered him for his incomparable achievements, for his zeal, for his exactness, for his knowledge, for his power of work, but his earnestness of purpose, his love of truth and his self-sacrifice made an indelible impression on all. For what he has done and for what he is, the world honors Lord Lister more than all its warriors, all its statesmen, its historians and benefactors. Well might this grand old man say with justifiable pride, "*Quae regio in terris nostri non plena laboris.*"

ECHOES AND NEWS.

NEW YORK.

New Clinic at the Polyclinic.—The New York Polyclinic Medical School and Hospital has established a night clinic for Genito-Urinary Diseases on Monday and Thursday evenings at 8 P. M.

Appointment of Dr. Calkins.—Dr. Gary N. Calkins of the department of zoology of Columbia University has just been appointed consulting biologist to the New York State Pathological Hospital. Dr. Calkins will continue with his university work as well.

Expert Anesthetists Appointed for Bellevue and Allied Hospitals.—Dr. Myron P. Denton and Dr. George M. Creevey have been appointed to Bellevue and Dr. Samuel J. Kopetzky to Harlem hospitals as expert anesthetists. The Board of Trustees has made this important departure in order to ensure the administration of anesthetics in the most approved manner, as well as to provide for the practical instruction of the incoming members of the house-

staff in the selection of anesthetics for individual cases, and the best methods of administration. As soon as qualified anesthetists are secured appointments will be made to Gouverneur and Fordham hospitals.

The New York Obstetrical Society.—The following resolution was passed at the meeting of the New York Obstetrical Society held Dec. 9, 1902: Resolved: That by the death of Dr. John Byrne, our oldest Honorary Fellow, the members of this Society have lost a beloved associate, whom we esteemed as an eminent surgeon, a wise counselor and a faithful friend.

Charles Jewett, M.D., Henry C. Coe, M.D., *Committee.*

Hygiene at Teachers' College.—The faculty of Teachers' College has decided to give instruction in hygiene next year by providing twenty distinct courses in physical education. Among the subjects to be taught are child study, school psychology, physiology, bacteriology, gymnastics, physical education, the theory and practice of teaching physical education in secondary schools, anthropometry and the history of physical education. The instruction is to be given in the new \$250,000 gymnasium now being erected in One Hundred and Twentieth street near Broadway. This, besides serving the purposes of a gymnasium, will contain physical laboratories and appliances for physical education. Dr. Thomas Denison Wood will have charge of this new departure in the university's work.

The New Medical Library and Historical Journal.—On January 15 a new medical journal with the above title will be published, "Devoted to the Interests of Medical Libraries, Bibliography, History and Biography." It is designed to fill a place occupied by no other journal, and will be the only magazine published in the English language devoted to the subject of medical history. Original articles will embrace the subjects of medical history and biography, practical medical library administration and economy, medical bibliography, the care of books, the history, construction and use of medical libraries, etc. A bibliographical feature will be the publication of a complete index medicus of every current medical book, both English and foreign. The contributors to the first number are: Lewis S. Pilcher, M.D., LL.D., Editor of the *Annals of Surgery*; Eugene F. Cordell, M.D., of Baltimore; Frederick P. Henry, M.D., of Philadelphia; James M. Winfield, M.D., of Brooklyn, and others. Published quarterly, the yearly subscription is \$2.00. All communications should be addressed: Medical Library and Historical Journal, 1313 Bedford Avenue, Brooklyn, New York.

PHILADELPHIA.

Philadelphia Hospital Staff.—The Board of Charities has elected for another year the entire staff of the Philadelphia Hospital. The staff was also increased by the appointment of Dr. Randle C. Rosenberger as an additional bacteriologist. Dr. William C. Pickett, formerly a registrar, was made an examiner of the insane.

Lectures by Army Surgeon.—Arrangements have been made with Surgeon-General O'Reilly to have Captain Charles F. Kieffer, surgeon in the U. S. Army, deliver eight lectures at the Jefferson Hospital on tropical hygiene, with a general consideration of purely tropical diseases. The lectures will be delivered to the members of the senior class from one to two o'clock on Fridays, beginning January 9.

Captain Kieffer has until recently been stationed in the Philippine islands.

Coroner's Work During 1902.—The records of the coroner's office show that eleven more inquests were held in 1902 than during the preceding year, the total being 2,804. Investigation of 3,709 sudden, violent, or accidental deaths was made but in 905 an inquest was deemed unnecessary. The deaths from heat were only 6, as against 144 the preceding year. Suicides numbered 203. Of these, 138 were males and 61 females. Five were colored persons. During the year the coroner's physician held 751 autopsies.

Low Death Rate for 1902.—Statistics of the Registration Division of the Bureau of Health for 1902, which have just been compiled, show a mortality ratio of 17.67 per 1,000 of estimated population. This rate is the lowest attained since 1879 when the death rate was 17.17 per 1,000 persons. Taking into account was the prevalence of smallpox and typhoid fever, this rate is considered to be a good showing. Director of Public Safety English attributes this result to the very thorough manner in which the several smallpox centers, as well as the public, private, and parochial schools, were disinfected. The low death rate reflects credit upon the sanitary methods adopted. The principal causes from which death resulted are: Consumption, 2,845; inflammation of the lungs, 2,976; diseases of the heart, 1,681; diphtheria, 435; scarlet fever, 143; smallpox, 231.

Municipal Hospital Bill Signed by the Mayor.—Mayor Ashbridge has signed the bill authorizing the removal of the Municipal Hospital from its present location in the Twenty-eighth Ward to the new Macalester site in the Twenty-third Ward. The reasons given are that the present buildings and grounds are entirely unsuited to the treatment of smallpox and other contagious diseases by modern methods. He states that "The fears of the people in the Twenty-eighth Ward and of those in the Thirty-third Ward did not enter into the consideration of the matter, as I share the opinion of all specialists the world over that a hospital for contagious diseases is no menace to a neighborhood under modern methods and conditions." Notwithstanding this, the residents of the new locality have engaged counsel and will make a determined fight against the building of the hospital in that ward.

Diagnosis of Intestinal Injury Following Abdominal Contusion.—Dr. Robert G. Le Conte selected the above subject for the Annual Address in Surgery which he delivered before the Philadelphia Academy of Surgery January 5. The address was based on personal observation of 30 to 35 cases. The speaker said that when there was external opening of the abdomen following injury, the indications for operation were clear. When no such opening exists it is often difficult to decide upon the course of treatment to pursue. There is in such cases no pathognomonic symptoms of injury to the intestinal tract. The subject is to be considered from the standpoint that the operative mortality of abdominal injuries is between 50 and 60 per cent. The stomach and intestines may be injured in one of four ways: (1) crushed; this may involve all the coats or only the mucosa, the latter possibly resulting in an ulcer as in cases of traumatic ulcer of the stomach or traumatic appendicitis; (2) bursted; this is not a common lesion, Dr. Le Conte never having seen an instance of such injury; (3) torn; (4) killed by cutting off of the blood supply. The rapidity of the onset of symptoms depends on three things: (a) the amount of food in the injured viscus; (b) the part of the alimentary tract

ruptured; (c) the coat or coats of the tract that are involved.

Subjective and Objective Symptoms of Intestinal Injury.—Very little can be diagnosed from shock alone. Trivial injuries may produce profound shock and severe injuries but very little shock. The rapidity with which reaction from shock occurs is not a sure guide but a secondary fall of temperature below the normal soon after the rise is a bad sign. A steadily increasing pulse is a serious symptom but must be accompanied by others to be alarming. Increased, shallow, thoracic breathing is of diagnostic value. The facial expression of the patient, especially if the "abdominal facies" be present, is a most valuable sign. The expression referred to probably comes on with peritoneal involvement. Pain, when deep and radiating, is of marked significance. Tympany is usually present for a comparatively short time when there is no severe injury and is probably caused by temporary paresis of the intestine. When it is extensive, progressively increases, or appears late it is a grave symptom. The absence of liver dulness is a most unsatisfactory sign. Dr. Le Conte has found dulness absolutely absent when there was no gas in the abdominal cavity. He has never been able to give a definite value to this sign. Vomiting immediately after injury has no significance but later on is of importance. Concerning leukocytosis, so many other factors besides the actual injury may cause it that it is not of much value early in the case. In connection with the latter perforation it assumes a new significance.

When Shall One Operate in Abdominal Contusion?—Dr. Le Conte's conclusions are briefly as follows: (1) A moderately assured diagnosis of intestinal injury should be made before operation is resorted to. If this is not done, the surgeon will open the abdomen in many cases only to find that the trauma is confined to the abdominal wall. Hypothetically, 30 to 40 cases of each 100 admitted to general hospitals need operation but this does not mean that the surgeon should operate immediately in all. It is better to wait, in many instances, for symptoms indicative of intestinal injury. (2) In the presence of shock one cannot diagnose intestinal injury, neither is primary shock an aid to diagnosis. Hence the surgeon should wait for reaction. (3) Gradually increasing rigidity and the facial expression (impossible to describe) referred to, are two of the most important symptoms suggesting operative interference. (4) A position midway between that of operating upon every case at once and that of waiting until an absolutely positive diagnosis can be made, is the proper one to take. (5) Only extended experience in observing cases can give that refinement in diagnosis which will enable one to decide upon the proper course to pursue in these cases.

Philadelphia's Charities.—The "Directory of Charities" that the Civic Club of Philadelphia is about to publish will go far toward proving that the people of this city give more in actual charity per capita than those of any other city in the world. Among the charitable organizations the Philadelphia Society for Organizing Charity has first place. The general secretary, as well as nearly all the office force and a large proportion of the outside force, is a woman. The society has divided the city into 16 districts over each of which a superintendent is placed. Under the head of "Relief in Sickness" the directory will name 23 institutions that send out ambulances for patients upon call; 7 with diet departments or kitchens; 33 that send nurses to the sick at their

homes; 23 have "fresh air funds," or free dispensaries, or hospital annexes by the sea or in cool valleys for the treatment of summer patients; 43 have public dispensaries; there are 9 hospitals for little children; 51 associations maintain hospitals for women alone, two for men exclusively, 29 for men, women, and children; medical aid at home is rendered by 7 institutions; there are two "shut in" societies, 61 homes and refuges for adults, four poor houses, 16 societies for the benefit of children, particularly orphans; 22 day nurseries, and 58 "homes" for children. For the relief of special classes of persons there are 41 establishments and for relief not thus restricted there are 125. Societies for gratuitously obtaining employment for the poor number 80. It is estimated that at least 200,000 persons in Philadelphia annually receive relief.

CHICAGO.

State Hospitals for Consumptives.—In its biennial report, just submitted to Governor Yates, the State Board of Health emphasizes the necessity for the immediate construction of a State sanatorium for consumptives, not only as a means of cure of such patients as are sent to it in the early stages of the disease, but to prevent the spread of the disease in the State. Of the 5,000,000 inhabitants of Illinois, the report estimates that over 700,000 are doomed to die of some form of tuberculosis unless steps are taken to stop the ravages of the disease. The report continues: "Tuberculosis is an infectious disease, and causes one-seventh of all deaths. Over 8,500 persons die from it annually in Illinois. While there is no disease that causes so much disaster in the human family, there is none more easily prevented. Patients suffering from tuberculosis cannot be properly cared for at their homes; general hospitals are ill-adapted for their treatment, and since tuberculosis has been recognized as a communicable disease, the doors of nearly all hospitals, public and private, have been closed to them. The treatment of consumptives requires segregation in properly constructed hospitals. The importance of special climate, altitude and atmosphere in the treatment of consumptives has been greatly over-estimated. The treatment and cure of the disease is as feasible in Illinois as in any other State, and cures effected in the home climate, in which the patients must remain, are more lasting than cures in other climates." The Board points out that it is impracticable for a city or county to maintain a hospital for consumptives, and insists that it is the State's duty to establish such an institution, and thereby save the lives of thousands of its citizens.

State Board of Examiners.—The Board recommends the passage of a law creating a State Board of Examiners, which would leave the State Board of Health free to perform sanitary work alone.

New Cook County Hospital Staff.—Attending and associate physicians and surgeons for the Cook County Hospital were recently appointed, and the appointments approved at a special meeting of the County Board. The appointments made were as follows: Surgeons—Dr. Nicholas Senn, Dr. J. B. Murphy, Dr. William Hessert, Dr. William E. Schroeder, Dr. Thomas A. Davis, Dr. F. S. Hartman, Dr. C. F. Swan, Dr. A. I. Bouffleur, Dr. J. W. Tope, Dr. Aime P. Heineck, Dr. D. N. Eisendrath, Dr. O. W. McKellar, Dr. Frank R. Byrnes, Dr. A. E. Halstead, Dr. J. P. Webster, Dr. Charles Davison, Dr. P. S. Doane, Dr. L. L. Gregory, Dr. C. E. Humiston, Dr. F. Kreissl, Dr. Mary J. Kearsley, Dr. Edward H. Lee, Dr. Paul O. Owsley, Dr. C.

C. O'Byrne, Dr. Lawrence Ryan, Dr. Charles J. Rowan, Dr. F. R. Sherwood, Dr. G. T. Thompson, Dr. Daniel H. Williams, and Dr. Arthur E. Price.

Physicians—Dr. Frank Billings, Dr. W. S. Harpole, Dr. W. E. Quine, Dr. E. F. Ingals, Dr. F. Tice, Dr. R. B. Preble, Dr. Joseph L. Miller, Dr. James B. Herrick, Dr. M. L. Goodkind, Dr. A. R. Edwards, Dr. R. H. Babcock, Dr. A. H. Brumbach, Dr. Stanton A. Frieberg, Dr. George W. Hall, Dr. R. L. James, Dr. C. L. Mix, Dr. S. R. Slaymaker, Dr. Theodore B. Sachs, Dr. B. W. Sippy, and Dr. Edward F. Wells.

Children's department—Dr. I. A. Abt, Dr. William J. Butler, Dr. F. S. Churchill, Dr. Robert H. Harvey, and Dr. Josephine Jackson.

Contagious diseases—Dr. W. L. Baum.

Neurologists—Dr. Daniel R. Brower, Dr. Sanger Brown, and Dr. Sydney Kuh.

Eye and Ear—Dr. P. J. H. Farrell, Dr. Allen T. Haight, Dr. Willis O. Nance, Dr. C. C. Young, and Dr. E. F. Snyder.

Tuberculosis and laryngologists—The Rev. John Edwin Rhodes and Dr. Homer M. Thomas.

Obstetricians—Joseph B. De Lee, Dr. Frank B. Earle, Dr. Charles B. Reed, and Dr. Rachelle S. Yarros.

Gynecologists—Dr. L. M. Baldwin, Dr. E. A. Fischkin, and Dr. L. E. Schmidt.

Pathologists—Dr. E. R. Le Count and Dr. W. A. Evans; Resident pathologist—Dr. F. G. Harris.

Orthopedic—Dr. John R. Porter.

Dentist—Dr. Hart J. Goslee.

Associate Staff—Surgical—Dr. John Leeming, Dr. L. Hektoen, Dr. Bertha Van Hoesen, Dr. C. P. Stringfield, Dr. Victor S. Frankenstein, Dr. U. G. Windell, Dr. P. H. Conley, Dr. Svenning Dahl, Dr. James Alexander Harvey, Dr. D. R. McMartin, Dr. Thomas A. Olney, Dr. James M. Neff, and Dr. Samuel L. Weber.

Eye and Ear—Dr. G. F. Hawley.

Proctologist—Dr. J. Rawson Pennington.

Dermatologists—Dr. R. R. Campbell, Dr. William A. Quinn, and Dr. J. L. Wells.

Medical—Dr. Oscar A. King, Dr. Charles A. Loder, Dr. Groesbeck Walsh, Dr. Charles Spencer Williamson, Dr. James Moreau Brown, Dr. Arthur M. Brianza, Dr. E. F. Buecking, Dr. J. Z. Bergeron, Dr. Lorin C. Collins, Dr. Arthur M. Corwin, Dr. Ellis Kirk Keer, Dr. Julia Ross Low, Dr. E. A. Lyon, Dr. Frank R. Morton, Dr. F. S. Selby, Dr. Harry Gideon Wells, Dr. Twing Brooks Wiggins, Dr. Ernest L. McEwen, and Dr. H. S. Warren.

Contagious diseases—Dr. Rosa Engelmann.

CANADA.

Montreal General Hospital.—The December report for the Montreal General Hospital shows that the admissions into that institution during December were 241 and the discharges 245. The average daily sick in residence was 192. The admissions to the out-door departments numbered 2,556. The deaths numbered 19.

The Smallpox Situation in Ontario.—Dr. P. H. Bryce, secretary of the Ontario Board of Health, received notification on Jan. 3 of outbreaks of smallpox in three different sections of Ontario, as follows: At Galt, in Waterloo county, where there were several cases; at Thamesville, in Kent county, and on the Deseronto Indian Reserve in the eastern part of the province. The day previous Dr. Bryce had issued a statement to the effect that the outlook for the province as regarded smallpox was much

brighter than a year ago. In Dec., 1901, there were 250 new cases reported in the province. In Dec., 1902 only 86 cases were reported and nearly all of these were in two centers, one of which is now practically cleared up. During 1902 there were in Ontario 2,500 cases. Fifteen deaths occurred in that year. During 1901 there were 1,838 cases with seven deaths. In 1900 there were eleven deaths. In 1899 there were seven deaths.

St. Michael's Hospital, Toronto to Have a New Wing.—The authorities of St. Michael's Hospital, Toronto, have just completed the purchase of two lots adjoining the hospital buildings and will use for the present the houses on them for the purposes of a maternity ward. Later on a new building will be erected connecting the new maternity ward with the hospital proper. There are now 150 patients in this hospital.

Obituaries.—Dr. C. W. Hopkins, medical superintendent of the Maternity Hospital, Montreal, died in that city the latter part of December of typhoid fever. He was a member of the graduating class of the medical faculty of McGill University of last year and was considered to be one of the best all round students which had ever been graduated from that famous institution, having taken first class honors in almost every subject throughout his entire course.

Dr. Colin McPhail, Summerside, Prince Edward Island, vice-president of the Canadian Medical Association for that province and treasurer of the Maritime Medical Association, died suddenly of apoplexy on Dec. 3. Dr. McPhail, who was in his fortieth year and considered to be one of the leading practitioners of the Island province, was a graduate of Trinity Medical College, Toronto, and subsequently took a post-graduate course at Edinburgh.

Dr. Archibald Young Scott, Toronto, died Jan. 3 from myocarditis following an attack of typhoid fever through which he passed two years ago. The late Dr. Scott was born in Ontario in 1861. Entering Toronto University, he was graduated B.A. in natural science in 1882. He studied medicine at Trinity Medical College and received his medical degree from Trinity University in 1887. In 1891 he was appointed professor of botany and chemistry at the Ontario College of Pharmacy, Toronto, a position which he held up to the time of his death. Dr. Scott was prominent in military circles, had seen active service with the Toronto University regiment in the Northwest Rebellion in 1885 and when the Army Medical Service was organized a few years ago, he was gazetted Major of No. 4 Field Hospital Company.

Dr. A. C. McDonnell, one of the oldest practitioners of the city of Montreal, died suddenly on Jan. 2, at the age of seventy-four years. He was a graduate of Toronto University and was for over 20 years on the consulting staff of the Hotel Dieu Hospital, Montreal.

GENERAL.

Another Sicilian Journal.—The first fasciculus of a new Sicilian monthly journal of obstetrics and gynecology, under the direction of Prof. Consentino has just been published.

A New Journal of Pediatrics.—A journal, entitled *Rivista di Clinica Pediatrica*, will shortly be published under the direction of the Italian pediatricists Mya and Concetti.

The Russische medicinische Rundschau.—This is the title of a new journal published in Berlin that is to

collect and disseminate the best of Russian medical literature; thus making the research done in Russia more widely known to the scientific world. It is to be published monthly. The price is \$4.00, and the publisher, Max Hirsch, Berlin.

Malaria and Carcinoma.—A case of epithelioma of the lower lip of two years duration which healed entirely during an attack of malaria, only to recur shortly after the subsidence of that disease is reported by Dr. Portanova da Colle d'Anchise (Campobasso).

Hospital for Lepers in Paris.—It is proposed to erect a hospital for this class of sufferers, in Paris, of whom there is said to be 19, chiefly from the colonies. An appropriation of 25,000 francs has been asked for this purpose.

Pertussis Serum.—From Brussels comes the announcement of the discovery by Camillo Leuriaux of such a serum, the injection of which is said to have been attended with excellent results; a cure being effected within eight to ten days provided the treatment be given sufficiently early in the disease.

Hospital Burned.—The Atchison, Topeka and Santa Fé hospital has been burned. Dr. J. B. Cutter, the physician in charge, and his assistants worked heroically in getting out the 200 patients.

Gift to an Orange Hospital.—A fully equipped bacteriological and pathological laboratory has been presented to the Orange Memorial Hospital by Dr. William B. Graves of East Orange. It will be known as the Graves Laboratory. A large room has been set apart in the dispensary building and it will be at the disposal of private physicians as well as the hospital. The new laboratory will save considerable delay, as at present it is necessary to send cultures and specimens either to New York or to Princeton.

The New Index Medicus.—The Index Medicus was established in 1879, under the editorship of Drs. John S. Billings and Robert Fletcher, and was discontinued in 1899. The present publication, which is undertaken by the Carnegie Institution, will be known as Index Medicus, Second Series, Volume I commencing in January, 1903. It consists of the titles in full of books, pamphlets, theses, contributions to cooperative works and original articles in journals, transactions of medical and scientific societies, and the like, arranged under subject-headings. It is issued as early as possible after the first day of the month, time being allowed for the arrival of foreign journals, and it represents the literature of the preceding month. A table of contents accompanies each number, and on the completion of the volume an "Annual Index of Authors and Subjects" is issued. The subject part of this annual index is elaborately subdivided, the classification closely resembling that of the Index Catalogue of the Library of the Surgeon-General's Office. The annual index of the last volume of the first series occupies 156 pages in double and triple columns. The titles in certain languages, as Russian, Polish, Swedish, Danish, Finnish, Hungarian, Bohemian, Roumanian, and Japanese, are translated into English. The editor, while indexing all really original matter, does not admit "reports of progress" or include all copies of an article which may appear in other journals. Translations are admitted when in languages more familiar than the originals. The Index Medicus publishes no advertisements and does not exchange copies with other journals. The classification by subjects which will be adopted in the monthly numbers will closely follow that which use made familiar to the readers of the first series, but with such additions and modi-

fications as advances in medical knowledge may require. Robert Fletcher, M.D., Editor-in-Chief.

Baltimore Infectious Disease Hospital.—Monday last saw a final adjustment of the difficulty which the Municipal Health Committee had in deciding upon a site for an infectious hospital. The danger Baltimore has been exposed to owing to the lack of an infectious and isolation hospital seems about to be overcome. The opposition made by the influential citizens to the purchasing of a piece of property near the northwestern suburbs, has been at last compromised by abandoning that site and determining upon the selection of a large area in the southeastern suburbs, close to the Bay View Asylum Hospital. This property is so large that there will also be constructed a fine modern hospital for tuberculosis. This new hospital for tuberculosis will be built according to the most modern methods with plenty of sunlight and ventilation. The plans for this and the infectious disease hospital are now being discussed by the Health Commission.

College of Physicians and Surgeons of Baltimore.—A meeting was held Sunday afternoon by members of the Faculty of the College of Physicians and Surgeons to arrange the program for a course of post-graduate studies to be repeated this spring and summer. The Post-Graduate Course was first inaugurated last year under the direction of Prof. Harry Friedenwald. It was so successful that it will probably be given henceforth every spring. The number of physicians attending each course will be limited, thus enhancing the value of the practical side of the work. The courses to be given will be Medicine, Surgery, Nervous Diseases, Genito-Urinary Diseases, Pediatrics, Dermatology, Physical Diagnosis, Clinical Microscopy, Bacteriology and Pathology. It will again be directed by Dr. Harry Friedenwald, assisted by Dr. John Rührh, Dr. Harvey Beck, Dr. Charles Bevan, Dr. G. J. Preston, Dr. Leonard K. Hirshberg, Dr. J. Hall Pleasants, Dr. Julius Friedenwald, and Dr. Melvin Rosenthal.

Medal for Baltimore Board of Health.—The Baltimore City Health Department has just received a handsome bronze medal awarded to it by the Paris Exposition for the finest exhibit among the local boards of health for sanitation and hygiene.

Dr. Walter Reed Honored.—Under the auspices of the Medical Society of the District of Columbia memorial services were held in the Law Building of the Georgetown University this evening in honor of Major Walter Reed, United States Army, who died recently in this city. Many distinguished physicians and laboratory investigators who had come to Washington to attend the convention of the American Association for the Advancement of Science were present. Gen. Leonard Wood paid a glowing tribute to the work of Dr. Reed in Cuba and told how he practically exterminated yellow fever in the island. "The actual saving of life through Dr. Reed," he said, "has exceeded the number of lives lost in the war with Spain. The saving in money exceeded the cost of that war. Dr. Reed's yellow-fever discoveries were the greatest since the discovery of vaccination."

Dr. W. H. Welch, of Baltimore, in whose laboratory Dr. Reed worked to years ago, said Dr. Reed was "the greatest productive pathological investigator of the generation in this hemisphere. He belonged to the few who were really original discoverers of science. He solved the problem which had baffled all predecessors. His fame will be imperishable when finally recognized, because he dis-

covered the way to eradicate one of the most radical of pestilences. The general public does not appreciate the fact. If he had invented some great engine of war his fame would be international. But the discovery of something to save instead of destroy human life does not make the same impression on the imagination." Dr. Welch referred to the fact that Dr. Reed died leaving his family without any income other than would come to them from a pension of \$25 a month. "It is the plain duty," said Dr. Welch, "of the national government to make ample provision for the support of Dr. Reed's family." Others who spoke were Dr. Robert M. Marmion, medical director, United States Navy; Dr. Jefferson R. Kean, Dr. A. F. A. King and Dr. Charles W. Stiles, zoologist of the Marine Hospital Service.

For Medical Research.—During the annual meeting of the American Society of Naturalists in the main lecture hall of the Columbian University of Washington last week Dr. William H. Welch, of the Johns Hopkins University intimated that an important scientific endowment would shortly be made. He stated during a formal discussion of the subject of the most effective way of using educational endowments that, while he was not yet prepared to make the formal public announcement, he could assure those present that within the near future there would be a specially endowed institute or laboratory in this country for research in scientific medicine. The institute would be in a general way similar to the Pasteur Institute of France, and would greatly facilitate and energize special research along lines that would be of incalculable benefit to humanity. After Dr. Welch had referred to the prospect for the establishment of an independent institute of scientific research, some of the members suggested the possibility that the Carnegie Institute had given some assurances of aid in that direction. There were others who declared that since Mr. Rockefeller had made the original endowment under which Dr. Welch and others are working, any provision for an independent institute would come from him. Neither Dr. Welch nor Dr. Gilman, however, would indicate the source of the expected endowment, stating that such announcement would be premature at the present time.

Dr. Welch, in his remarks, reviewed his experience of a year in directing research work under the endowment of \$200,000 made by Mr. Rockefeller for the promotion of medical science. He said that the trustees of the fund had been given authority to direct the manner in which the fund should be used. The trustees at once recognized that the sum donated would not be large enough for the establishment of a separate laboratory. It was therefore decided that it should be distributed among different laboratories already existing. The sum was also insufficient to be applied to all lines of medical research. For that reason it was decided to make special research along the line of infectious diseases and preventive medicine. He proceeded then to tell about the work which resulted in the discovery of the germ of summer complaint and the cause of acute dysentery. He stated that the work of research had continued and that in connection with the malady of diarrhea, which was now being studied, special field and laboratory work would be undertaken during the coming summer.

Dr. Welch said the Rockefeller fund trustees had distributed portions of the endowment in the form of scholarships, and in that way obtained praise-

worthy investigation. Papers had been received from scientific workers in laboratories all over the country. The trustees had also aided promising young men who had been sent to laboratories in this country and even abroad for special investigation. The work of some of these young men in European laboratories had not only been of great good to the young men themselves, but to American science and the public. He asserted that while a great deal had been accomplished much more could be done with a separate institute or independent laboratory with a competent man at the head of it, similar to the Pasteur Institute in France, the Institute for the Study of Infectious Disease at Berlin and the institute at St. Petersburg.

Changes in the Medical Corps of the Navy, Week Ending December 27.—Medical Inspector D. N. Bertholet, ordered to duty as Fleet Surgeon of the Pacific Station. Medical Inspector E. H. Green, detached from duty as Fleet Surgeon, Pacific Station, and ordered to the Wisconsin.

Changes of the Medical Corps of the Navy, Week ending January 3.—Asst. Surgeon J. M. Brister, detached from the Frolic and ordered to the El Cano. Asst. Surgeon U. R. Webb, detached from the Iris and ordered to the Naval Station, Cavite, P. I. Asst. Surgeon H. A. Dunn, detached from the Vicksburg and ordered to the Frolic. P. A. Surgeon C. A. Crawford, detached from recruiting duty and ordered home to wait orders. P. A. Surgeon G. L. Angeny, detached from the Lancaster and ordered to the Essex. Asst. Surgeon R. W. Plummer, detached from the Naval Hospital, Chelsea, Mass., and ordered to duty at Chattanooga, Tenn. Asst. Surgeon G. F. Freeman, detached from the Essex and ordered to duty at Naval Hospital, Chelsea, Mass. Asst. Surgeon W. H. Ulsh, Dec. 22, 1902, retired from active service by reason of disabilities incurred in the line of duty. P. A. Surgeon H. C. Curl, ordered to the Naval Hospital, Mare Island, Cal., for treatment.

Obituary.—Dr. Julius Kohl, one of the widest known physicians in Illinois, who also has had a world-wide acquaintance, died at his home in Belleville, Ill., last week of cancer of the stomach. He was United States delegate to the National Congress of Physicians at St. Petersburg in 1900, and delegate to the American Tuberculosis Congress at New York in 1902.

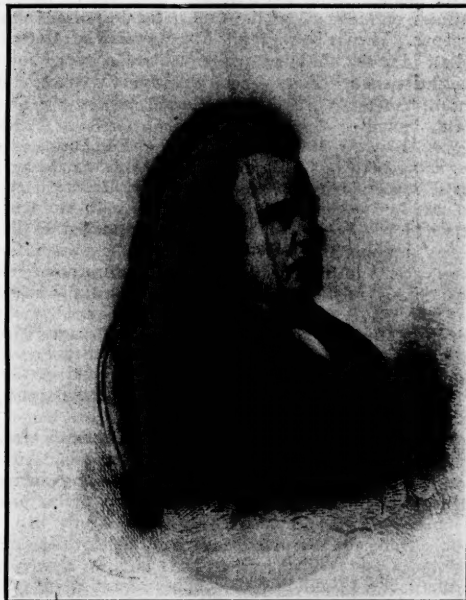
SPECIAL ARTICLE.

EXCURSIONS IN OLD NEW YORK MEDICINE. I.

It is proposed to give a series of abstracts and certain interesting details of old-time medical history in New York City that will renew the memory of many medical events and men with regard to whom the present generation should not be without certain definite knowledge. There could be no better subject to begin a series of articles of this kind than a sketch of the career of Dr. John W. Francis, the second president of the New York Academy of Medicine. His book on "Old New York, or Reminiscences of the Past Sixty Years," while only the development of a discourse delivered before the New York Historical Society, and published by W. J. Widdleton, New York, 1866, is a mine of information for those who are interested in personal details of New York City history and of the great men who have lived within its limits during the first half of the nineteenth century.

There are other reasons why Dr. Francis should be chosen as the first subject in Excursions in Old New

York Medicine, for he was particularly interested in medical journalism. During his student life he established the *American Medical and Philosophical Register*, which remained for four years a valuable repository of science and biography. In 1822 in conjunction with Drs. Beck and Dyckman, he edited the *New York Medical and Surgical Journal*. He was besides the contributor on American topics to Brewster's *Cyclopedia*,



JOHN W. FRANCIS, M.D., LL.D.

published in Edinburgh. His biographer says he was the first individual to receive a degree from the New York College of Physicians and Surgeons.

Dr. Francis was born in the year of Washington's inauguration as first President of the United States, the inauguration which, it will be remembered, took place in New York, 1789. He died in 1861, the first year of the Civil War, and his life, therefore, of seventy-two years, extends over an extremely important part of the history of the country. His biographer says of him, without any exaggeration, that few American citizens, unconnected officially with public affairs, were more identified through sympathy and intelligence with the development of our country during this important period than Dr. Francis. In some respects he stood alone and represented a social interest and a phase of American character of which few types remain.

The genial doctor was fortunately one of those men who combine scientific attainments and practical skill in his profession with broad, deep interests in literature and in the movements of human affairs generally. He came at a time when the pursuit of letters was not considered a very honorable avocation by many practical Americans deeply intent on making their fortunes. The son of one of his neighbors, it is said, had written a book of travel and Dr. Francis made it the occasion to warmly congratulate the father who, being a practical and prosaic business man, was annoyed at what he deemed a waste of time and regarding authors as a visionary and unprofitable race, responded rather gruffly to the well-meant compliments.

It is not likely that he ever forgot Dr. Francis' reply. "Sir," said the impatient doctor, with Johnsonian emphasis, "you have no appreciation of the glory of literature, and the true worth of brains and of fame. I had rather be a corn on Byron's toe than the possessor of your fortune, if I had to take your soul with it."

It is fortunate that a man of such wide sympathies was able to exert the influence that Dr. Francis did in New York. At the beginning of his career he became, in fact the year after his graduation, a lecturer on the Institutes of Medicine in the College of Physicians and Surgeons. Thence he was called to the Chair of *Materia Medica*. He felt the inadequacy of his education, however, and visited Europe, where he came in contact with some of the most prominent scientific men of the Old World, including Cuvier, Denon and Gall in Paris, Gregory, Playfair, Bell and Brewster in Edinburgh, and Rees and Abernethy in London. It is said that he was offered a partnership in medical practice by the latter, who was by no means prone to take up with strangers and who must have been thoroughly persuaded of Dr. Francis' attainments. With most of these men Dr. Francis seems to have been on terms of intimate friendship and his relations with them continued for many years.

On his return to New York in 1815 he became Professor of the Institutes of Medicine. In 1817 he accepted the Chair of Medical Jurisprudence, and in 1819 was transferred to the Chair of Obstetrics and Forensic Medicine.

It was the custom in those days for a man to teach many subjects rather than to specialize on one. After a very few years, however, Dr. Francis gave up teaching and confined himself entirely to the pursuit of his profession, especially of obstetrics. He evidently had a special genius for the practice of medicine, for his contemporaries are loud in praise of his tact, his power to reassure patients and his thorough realization of the capacities and limitations of his art. He was a favorite consultant for physicians themselves when they were ill, and after his death many was the kindly word spoken of him by physician patients.

A favorite expression of Dr. Francis, and one that he quoted very frequently to young medical friends, is the passage from Horae Subsecivae, by Dr. John Browne of Edinburgh, the author of "Rab and His Friends," which contains his precious advice to the young practitioner about to start in medicine.

"Let me tell you, my young doctor friends, that a cheerful face and step and neckcloth and buttonhole and an occasional hearty and kindly joke, a power of executing and setting agoing a good laugh, are valuable stock in our trade not to be despised. The merry heart does good like a medicine. Your pompous man and your selfish man don't laugh much or care for laughter. It discomposes the fixed grandeur of the one and has little room in the heart of the other who is literally self-contained. My Edinburgh readers will recall many excellent jokes of their doctors, Lang Sandie Wood, Dr. Henry Davidson, our Guy Patin and others."

With all his cheerfulness, his readiness to see a joke and his thorough appreciation of the last good story, Dr. Francis was one of the most sympathetic of men. A member of the medical profession on arriving in the city, having an exalted idea of the doctor, was disappointed at the facetiousness which happened to be the only quality Dr. Francis exhibited at their first interview. A few days after, accident carried the stranger into the squalid purlieus of the Five Points, and as he was picking his way "through the reeking crowds of filth" (those who knew the Five Points of even 30 years ago, will appreciate something of the truth of the adjective thus employed), the steps of the professional brother from the

country were arrested by the sight of a poor man tearfully carrying a little coffin and Dr. Francis walking bareheaded behind, the only mourner, except its father, for the child he had faithfully attended.

In fact, so charitable was Dr. Francis and so easily touched that he was frequently imposed upon. There is a tradition that it was never safe for him to carry a full purse, its contents would all disappear during the course of the day and it was ever open to a well-told story of want and suffering. At times he even failed to leave enough money to provide carfare for his journey home, and would have to walk across the city, fortunately not as extensive then as now, unless he met some one of the many busdrivers who knew him well and were ready to trust him for the amount of his car fare.

Dr. Francis' medical writings are nearly all of them of thoroughly practical character, called forth by observations in his practice. All of them have the stamp of the mind of a man wise beyond his generation. He published a short treatise "On the Use of Mercury" in 1811, "Some Morbid Anatomy Descriptions," 1814, "Dentman's Practice of Midwifery with Notes," 1825, "Letters on Cholera Asphyxia," 1832, "Observations on the Mineral Waters of Avon" and the "Anatomy of Drunkenness," about 1835. In the last book he anticipates a number of conclusions that are supposed to belong more especially to our own time and finds that tendencies to inebriety are the result of a special constitution of the nervous system, quite as much as a consequence of bad habits.

Dr. Francis was an extremely busy professional man. The annual receipts from his practice were for many years more than \$15,000. His biographer adds, "considering the fact that at the time he commenced practice, the population of New York was but 68,000 souls, this may well be compared even with the apocryphal sums supposed to be obtained by the practitioners medical of more modern days."

Dr. Francis lived to the age of seventy-two and died an extremely peaceful death. His long years of intense professional occupation did not shorten his career, or lessen his vitality. It would be interesting to go over the list of presidents of the Academy, as we shall, in a subsequent paper of this series, to show how many of them lived long beyond the Psalmist's limit. Dr. Francis' predecessor in the office of president of the New York Academy of Medicine, the venerable John Stearns, who was the Academy's first president, lived to the age of seventy-seven in the active practice of his profession and died then as the result of a dissection wound, inflicted during the making of an autopsy on a case in which he was particularly interested and of which he wished to find out the exact pathological details.

Some idea of how closely Dr. Francis was linked with the great men of his generation may be gathered from the following paragraph of his biography:

"Dr. Francis went to school with Washington Irving, and heard him declaim 'My Voice is still for War'; he dined with the Literary Club in Edinburgh, when Sir Walter Scott let out the secret of his Waverley authorship; he gossiped with the widow of Burns while her memory of Robert was fresh and full; he passed a memorable day with Southey; he welcomed Jeffrey when he landed at the Battery; he heard Tom Moore sing at New York suppers; he chatted over Cooper's early novels at the Bread and Cheese Club with their author; he discussed horticulture with Colden Mitchell, Bartram and Michaux; the brain with Cuvier; politics with Livingston, Clinton, Clay, Webster, Gallatin and Cobbet; poetry with Aikens and Halleck, Ireland with Emmet, famous people with Gouverneur Morris; journalism with Walsh; history with Sparks; and art with Trumbull,

Greenough, Dunlap, Jarvis, Leslie and Crawford and few of the local associations of his foreign travel were reverted to with more pleasure than the hour he passed in Cowper's pew and Boerhaave's garden."

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, December 20, 1902.

A THREATENED INVASION OF INFLUENZA—A GOVERNMENT REPORT ON HOMES FOR INEBRIATES—INSURANCE AGAINST APPENDICITIS—MAJOR ROSS AND THE NOBEL PRIZE.

THE British climate seems to be trying to beat its own record as a "quick change" artiste. A week or two ago furs were our only wear; now even the ordinary overcoat is deemed superfluous. The weather is mild and moist, and there is little prospect of the traditional Christmas weather, which is coming to be generally looked upon as a myth. Whether owing to the weather or not, we are threatened with a visitation of influenza. The number of deaths from that insidious malady has for some weeks been creeping up *sensim sine sensu*, as Cicero says; and the amount of sickness from that cause is already considerable. Schools are being broken up prematurely, and distinguished persons of one kind or another are canceling their engagements in consequence of the scourge. The type of the disease is as yet mainly catarrhal, but severe cases are reported in which inflammation of joints and high temperature simulate acute rheumatism. The cases at present are but as single spies, but if we may judge from the experience of previous seasons, they will soon come as battalions.

Dr. Welsh Branthwaite, Government Inspector under the Inebriates Acts, states in his annual report, which has been issued this week as a Blue-book, that at the close of 1901 there were in this country 21 institutions licensed under the Acts. This figure shows an increase of one over the largest previously recorded number of licensed establishments. As the law stands an essential preliminary to admission to an inebriate home is the consent of the patient. This it is very often impossible to obtain and, short of a new Act of Parliament, the difficulty cannot be got over. It is undoubtedly to the disadvantage of the inebriates that this should be so, but personal liberty must be safeguarded before everything. Did not a late Archbishop of Canterbury declare that he would rather see Britain free than sober? It becomes more evident, says Dr. Branthwaite, every year that a very large number of persons who would otherwise be willing to submit to treatment are prevented from so doing by their inability to find means to make even the smallest weekly payments. Accommodation is wanted for the wife of the small shopkeeper, artisan or laborer; the wife of the man who has a family and home to keep together, and who, given the utmost industry and sobriety, has barely sufficient wherewith to do it. Accommodation is wanted for the man himself, and also for men of a better status who have lost their positions without hope of recovering lost ground except by renewed sobriety. Institutions are wanted where patients can be received for treatment, and pay little or nothing. Places of monastic simplicity in construction and surroundings are required, where living is only such as is necessary to support working life, and where industry shall be compulsory, as contributing to the support and maintenance of patients, as well as to the benefit of their health. There are many philanthropic societies who would at any time be willing to start retreats on these lines, but they are blocked by financial considerations; the original outlay needed for suitably launching the institution is too great, and the sources too uncer-

tain from which subsequent income can be guaranteed for the maintenance of patients. It would appear therefore as if the future development of the voluntary Act mainly depends upon the munificence of private individuals, and it would be well if, for the sake of humanity, the attention of the wealthy could be drawn to the needs of destitute inebriates. Dr. Branthwaite says that he has made inquiries regarding certain of the secret remedies and drug specifics which were from time to time vaunted as cures for inebriety, but he has yet to find one which would bear the test of strict investigation or one whose statistics of "cures" can be supported by trustworthy evidence. There is no royal road to cure, and indeed, he believes that inebriates are very rarely cured in the sense that they acquire a state enabling them to take liquor in strict moderation. An inebriate remains an inebriate for the rest of his life, so long as he touches alcohol in any form. On the other hand, many, both male and female, have been weaned from the habit, and have been taught to live without liquor and to remain without it. As Dr. Johnson said of himself, "they can abstain but they cannot be temperate." Dr. Branthwaite is absolutely opposed to the notion that a female inebriate may be regarded as hopeless. This notion is both cruel and erroneous, and does incalculable harm by instilling into the minds of inebriate women the hopelessness of struggling against their failing, whereas, in his opinion, with equal consideration and treatment, women are every whit as reformable as men, and possibly even more so. Dr. Branthwaite gives the following statistics regarding the admission of patients to inebriate retreats during 1901:

	Admitted under the Acts.	Admitted privately.	Total.
Males	111	136	247
Females	109	77	186
Totals	220	213	433

Last spring Lloyd's did good business by insuring against smallpox at the low rate of half-a-crown per cent. Now it is stated in the newspapers that the prevalence of appendicitis has suggested to one of the most prominent firms in Lloyd's that the public might like to insure against that disease. For a premium of one dollar the assured, if he has to undergo an operation for appendicitis, will have all his direct expenses paid up to \$1,000, and in the event of his death under or from the operation a total sum of \$1,000 will be paid. Although the idea has quite recently been mooted it is said that a large number of people have already availed themselves of this insurance. The premium, it will be noted, is the same percentage as was charged for smallpox. The illness of the King last summer gave a tremendous vogue to appendicitis, and the recent operation on Lady Dudley, the Vice-Queen of Ireland, has given it a fresh stimulus. But is there not a better way than insurance? The following letter appeared in the *Daily Chronicle*, the leading Liberal paper, a few days ago:

"In talking with some of our American cousins the other day upon the prevalence to-day of appendicitis in our country, I was surprised by their inquiry, 'Why don't you do as we do; operate upon the children in infancy? This preventive is getting as common with us as vaccination.' Can we learn anything from them in this matter?"

Doubtless we may learn many things from our American cousins. But the particular lesson the learned Theban, who put the problem above stated before the world, requires to learn before anything else is to understand American humor.

The award of the Nobel Prize for Medicine to Major Ronald Ross has not given unmixed satisfaction to the medical profession of this country. It is, pretty gener-

ally felt that if anyone here deserves a prize for helping to solve the malaria problem it is Patrick Manson, who gave Ross the idea and guided his researches all through. Manson was the initiator and director; Ross, owing to the accident of his being stationed in a district of India where material for experiment lay close at hand, was able to carry out his instructions. He was an intelligent subordinate, nothing more. His early work was so crude that Lord Lister is reported to have said that his drawings and reports shocked his scientific sense. In one thing, however, Ross has from the first shown himself capable of independent action, and that is in pushing his discoveries. It is marvelous how the newspapers, which are generally by no means well informed as to medical matters, have obtained accurate knowledge of every detail of his work, of his movements and of his intentions. They have even unearthed literary efforts of his which the world had willingly let die, if it ever knew of their existence. We hear of dramas and novels from his pen, one romance entitled "The Spirit of the Storm" being singled out by no less a person than the president of the Aberdeen Young Men's Christian Association for special praise. I confess it does not surprise me to learn that the mosquito-hunting Major has written romances, for he has shown himself able in other directions to bring into play with great effect what Tyndall called "the scientific use of the imagination."

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

HYPERTROPHY OF THE HEART IN KIDNEY DISEASE—ON THE TREATMENT OF HEMIPLEGIA.

OUR scientific and medical brethren in the German Empire have been busily engaged during the past month in their various learned societies in discussing the medical aspect of many urgent topics. The following have most important practical bearing for our readers among the practitioners of medicine:

SENATOR, at the Society of Internal Medicine in Berlin, Nov. 3, 1902, presented a monograph on the subject of Hypertrophy of the Heart in Diseases of the Kidneys, showing, among other things, that, notwithstanding the great progress which has been made in knowledge of diseases of the kidneys through Bright and Traube, the causal and intimate relation between hypertrophy of the heart and diseases of the kidneys has not yet been fully determined. The important point to be settled in this connection is what part of the heart is diseased most frequently and to the highest degree. K. Hirsch has been able, by means of careful weighings, to determine that the most frequently and most severely diseased portion is the left ventricle. The right ventricle, on the other hand, is much more rarely and much less severely diseased, especially hypertrophied. The cause of this hypertrophy is, according to the mechanical theory of Traube and the viscosity theory of Ewald, to be found in the altered chemical conditions which were long ago described by Bright. Very recently Strauss has discovered in the clinic of Senator that the molecular concentration of the blood in simply chronic nephritis is usually normal. In atrophy of the kidney, on the other hand, it is increased, as are also the nitrogenous excrementitious materials. On the other hand, the amount of albumin present in the urine is quite the opposite. The poisonous qualities of the urine are, according to the method of investigation advised by Bouchard, much more increased in atrophic kidney. Senator formulated the old theory of Bright in the following terms: "The increase in the molecular elements of the blood leads to damage

upon the blood-vessels and upon the heart, due to irritation. The reason for the rare presence of this increase in the common, chronic nephritis may be found in the higher degree of permeability of the blood-vessels, and to hydrops, which might otherwise be expressed as a safety valve of the organism. In this affection, therefore, there is rarely hypertrophy of the heart present. In the presence of a sufficiently long persistence of life, the walls of the blood-vessels thicken and narrow on account of this irritation previously mentioned. This obstruction to the blood-stream constitutes a resistance for the heart, which must therefore become hypertrophied. Since, in atrophy of the kidney, there is a greater abundance of abnormal substances in the blood, the contraction of the blood-vessels comes on early, and is followed by a narrowing. Therefore, in this form of nephritis, hypertrophy of the heart appears earlier, and to a much higher degree."

TREUFEL, at the Physicians' Society in Freiburg, Oct. 31, 1902, discussed the treatment of hemiplegia in the following terms: Up to a few years ago the pyramidal tract was regarded as the sole path of motor impulses alike in the brain and the spinal cord. More recent investigations, however, have led to knowledge of the fact that in addition to the pyramidal tracts, there are other motor canals, which may enter in by substitution. According to experimental evidences, it has lately been found that the hemispheres of the brain may acquire control over the same side of the body. If this premise is laid down in the beginning, the treatment of hemiplegia of cerebral origin comes next to attention. There are small and partial lesions in the internal capsule, which, clinically, give either no symptoms, according to Nothnagel, or which cause only a temporary weakness of the muscles on one side. In these rather light cases probably the intact fibers of the pyramidal tract become substitute paths for those which have become destroyed. It is therefore, possible to make the following statement: That there can hardly have been a total loss of the motor cells in the cortex of the brain on one side or a total interruption of the internal capsule and its fibers in such cases. When such total lesions have occurred and recovery follows, it is necessary to suppose that the healthy hemisphere has taken the place of the damaged one, and exercised a motor influence upon the same side of the body. This kind of compensation seems to be more common in paralysis of the cortex, namely the destruction of the motor cells themselves of one side. It is worthy to note in this connection a case of Monokow, frequently cited in literature, namely, in a twelve-year-old boy with an early developed porencephalia, and also a very completely right-sided defect of the central convolutions of the operculum and of the lobus paracentralis, and an almost complete failure of the corresponding pyramidal tract, suffered a light damage of the muscles on the left side. The autopsy showed in addition to an almost complete disappearance of the right pyramidal tract a compensatory excessive development of the left. In such cases the motor impulses, as has been experimentally proved, pass through the same sided anterior pyramidal commissural fibers and anterior commissure of the spinal cord. On the other hand, according to the experiments of Bechterew and others in monkeys, and as has been claimed and shown by Munk, Gaule and others, a restoration of the motor centers may take place, and that especially the subcortical important ganglia of the brain, for example, the optic thalamus and corpora quadrigemina may be brought to an independent efficiency of innervation. Through the medium of these subcortical brain ganglia, there may be, furthermore, when the internal capsule of one side

has been totally destroyed, the following motor paths supplied by substitution: (1) cortex of the brain, optic thalamus, corpora quadrigemina, and the lateral tract of Monakow. The last named go, then, from the red nucleus to the anterior corpora quadrigemina, and run, after crossing in the ventral part of the tegmentum, through the lateral part of the pons and the medulla oblongata to the spinal cord. In this they may be followed in the lateral tract of the spinal cord, ventral to the lateral fibers of the pyramidal tract, down to the sacral portion of the cord; (2) cortex of the brain, optic thalamus, corpora quadrigemina and the anterior commissural fibers, according to Probst and others. In this manner the injured internal capsule and the lateral pyramidal tract are totally avoided. In addition to these chief substitution paths, as they might be called, there are other paths, namely, the cortex of the brain, the lenticular nucleus and the cortex of the brain and the fibers of the corda, corpus callosum, etc. The two described above, however, are certainly the most important. Recently Münch and Petersen have shown as very likely that the centrum is the chief path of reflexes from the skin to the cortex of the brain. This point is of considerable moment. All of these facts and theories may be made use of in the treatment of severe hemiplegia. For example, if there is imagined a complete right-sided hemiplegia through destruction of the left internal capsule, the patient is directed to stretch out his injured right hand to that of the observer. This command follows this path: Through the ear and the organs of hearing into the temporal lobe, and also through the path of sight into the posterior half of the brain. From these points outward there pass association fibers, which finally reach the center of the arm on the cortex. This innervation impulse is started, which passes in to the pyramidal tract, down through the internal capsule, but is arrested there through the lesion. From this point it is supposed that through the continual repetition of the command and the accumulation of its stimulus on the cortex of the brain, there finally occurs a very great impulse, which breaks out beyond the ordinary paths of the internal capsule. This is, above all others, most commonly along the course of fibers between the cortex and the optic thalamus. Through its common association system, the optic thalamus is in direct union with the optic lobes in the occipital origin of the brain, and the most recent researches of Schültz have shown a system of motor association fibers which embraces the known senses of the optic, olfactory and pain sense cells. For this reason it is all-important to make use of the daily repetition of this influence upon the brain, so that through the increased force of the will, this new path may be established. Similarly, practice in the imitation motions is very important, and when there is loss of the skin reflexes, electricity may be brought into use. In order to maintain the apparent equality in weight of the two limbs, these motions should be made, when possible, in water—in the bath. The movements, whether active or passive, must be made methodically, and the demand for active motion must be positively given. Through a loss of the reflexes in the lamed limbs, and through a special adaptation of electricity, the patient may be brought to believe that the muscles are still able to move, and that he, therefore, must have hope and trust. When this method of treatment is followed, although it must extend over a long time, the essentials of it are patience and understanding of what is to be realized on the part of the doctor, and great patience and perseverance upon the part of the patient. Passive motions must be repeated when the patient's eyes are closed, in order that his muscular

sense may be revived. For this purpose, it is useful to use the same manipulations with both extremities. So soon as the movements begin to appear, various co-ordinated movements must be added, especially such as are concerned with the usual processes of life, for example, washing, combing the hair, and putting on the clothes. Motor aphasia, where only the words, and not the understanding, have been lost, is a condition in which practice is very advisable. When the facial nerve has been paralyzed, various movements must be practised before the looking-glass, and repeated many times during the day, of course, for short sittings each. The period of the disease at which these movements should be begun depends entirely upon the symptoms. In general, the physician should not wait too long. Perhaps on the fourth day after the sense of feeling has returned passive motion should be instituted, very briefly and gently at a time, and the regaining of reflexes and the use of electricity begun. If the patient begins with a few movements and fails, one must not feel that a primary failure is absolute. On the other hand, it is needless to expect that the hemiplegia shall, after a few weeks, become perfectly sound. Such is not the aim of this method of treatment. But when one thinks of the results obtained by Charcot 25 years ago, so that he could utter the dictum that, "when a lesion remains in the internal capsule so that the patient just escapes with his life, a severe paralysis with incurable contracture will remain," one is permitted to feel satisfied with the undoubtedly good results which to-day the use of these methods of treatment has certainly produced, as has been reported by Rhothman, Kohnmann, P. Lazarus, and others.

THE SIGNIFICANCE OF CUTANEOUS ANGIOMATA.

To the Editor of the MEDICAL NEWS:

DEAR SIR:—In connection with the interesting paper by Dr. Douglas Symmers in your last issue, while I agree with his conclusions as to the absence of any special relationship to malignant disease, there is, I think, no question of the frequency of the association of spider angioma with various affections of the liver. This is a point which has been referred to frequently, and at the conclusion of a paper on the family form of recurring epistaxis associated with multiple telangiectases of the skin and mucous membranes (*Johns Hopkins Hospital Bulletin*, Nov., 1901), I called attention to their frequency in cirrhosis and cancer of the liver and in chronic jaundice from gall-stones. Much more common in these conditions than the small, circumscribed, slightly elevated, bluish or bright red angioma, is the stellate variety, which may also have a small, solid, bright red or pink center. In the case of catarrhal jaundice, mentioned in my paper, the angioma subsequently disappeared. An interesting communication on this subject has recently been made by Prof. Bouchard in the *Leyden Festschrift* (see also *Revue de Medecine*, Oct., 1902).

W. M. OSLER.

Johns Hopkins Hospital.

The Treatment of Rheumatic Diseases with Iodide of Sodium.—Dr. P. ZWEIFEL (*Pract. Vratsh*, No. 46, 1902) recommends in cases of ischias, lumbago, torticollis and like rheumatic conditions, where the usual method of treatment fails, subcutaneous injections of a five-per-cent. solution of iodide of sodium. He reports a number of cases where this method was successfully used by him for the last two years, and he claims that not only does this method act more promptly than any other, but a relapse of the disease is also less frequent.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held November 6, 1902.

The President, John M. Fisher, M.D., in the Chair.

THE evening was devoted to a symposium on "Pelvic Suppurative Processes in the Female Pelvis."

Pus in the Pelvis Depending Upon and Complicating Appendiceal Disease in the Female; Methods of Treatment.—By invitation Dr. John B. Deaver presented a paper on this subject. He said that appendicitis may cause a pelvic abscess in three ways: (1) By the extension of a purulent collection from the right iliac fossa to the pelvis; (2) by an appendiceal abscess in the pelvis with the appendix hanging over the ileo-pectineal line or entirely in the true pelvis; (3) by infection of the tube and ovary with involvement of both appendix and adnexa in purulent exudate. In the rapid cases of appendicitis with general peritoneal infection, the pelvis is as a rule filled with sero pus, but the majority of instances of pelvic abscess, with an appendix above the ileo-pectineal line are due to a secondary involvement from the primary focus. The percentage of cases in which acute appendicitis exists in the female has been estimated by different observers with wide variation. During 1901, of 238 cases of acute appendicitis in the adult, operated upon by the writer, 34.8 per cent. were women. The error most often made in diagnosis is that between pyosalpinx and appendicitis. This error is more serious, in that appendiceal disease is progressive in character and demands operation during the earliest stages, while a salpingitis, which is usually due to gonorrhea, does not require an early operation because of the limiting nature of the disease. Pelvic abscess due to infection ascending the tubes will present symptoms distinguishing it from appendiceal abscess in most instances. A small ovarian cyst on the right side of the pelvis, twisted on its pedicle, may simulate appendicitis in the pelvis with abscess. Infection of ovarian cysts by a diseased appendix has been reported. Should the resulting hematocele of a ruptured ectopic gestation become infected, the differential diagnosis is rendered very difficult. A very interesting phase of appendicitis, is when the right tube or ovary may become infected from a diseased appendix in the pelvis. Of the 83 cases of acute appendicitis in the female, operated upon by the writer at the German Hospital, disease of the adnexa was coincident. In one a cystic condition of both tubes and ovaries was present; in another a double pyosalpinx with an infected appendix. In three cases an acutely congested and inflamed appendix was undoubtedly the cause of a right sided pyosalpinx without any disease of the left side. The treatment of appendiceal abscess will depend upon the location of the pus and the condition of the patient. Where the abscess is high enough in the pelvis it may be reached by an incision in the loin and reflecting the peritoneum from the iliac fossa, opening and evacuating the abscess below its upper limits. The cavity is then washed out and packed with gauze. An extra-peritoneal operation of this nature is only to be advocated because of the size and situation of the abscess and the infectious nature of the appendiceal pus which may render a complete operation more hazardous. If the condition of the patient is desperate, i.e., if the anemia and sepsis are so marked that a prolonged operation would cause death, the abscess may be evacuated by drawing the cervix well forward and freely incising the posterior wall of the vaginal vault, opening the peritoneum and evacuating the pus. Irrigation should not be practised, and the cavity simply

drained with gauze. Whenever possible the abdomen should be opened, the intestines walled off with gauze, the appendix and any infiltrated exudate or serum or omentum ligated and excised, and the tubes examined, especially on the right side. In many instances they will be diseased and may have to be removed, but if possible should be left in situ, after walling off with sterile gauze.

Pus in the Pelvis as a Result of Bone or Joint Necrosis.—Dr. H. Augustus Wilson, by invitation, briefly presented the orthopedic aspect. He said that there were three principal sources of pus in the pelvis having its origin in tuberculous bone, i.e., Pott's disease, hip disease and sacro-iliac disease. Emphasis was laid upon the difficulty of diagnosis in cases where disease of the pelvic organs coexisted with tuberculous bone disease. The distinctive evidences of the disease of the spine must be relied upon in Pott's disease. In hip disease pus in the pelvis can only occur in those extreme cases where the acetabulum is perforated and even then the pus usually tends to a downward course and outlet. Sacro-iliac disease is the most difficult to differentiate of all bone and joint diseases, because the disease comes on in adult life and insidiously, is often caused by pregnancy and therefore its existence is overlooked until its extensive ravages assume such shape as to render its recognition beyond question. Attempt was made to remove the idea of the hopelessness of tuberculous bone and joint disease, which conception has done more than anything else to interfere with complete recovery by postponing the application of proper treatment. Tuberculous bone disease should be considered as such only when the conditions are in the so-called incipency. The conditions arising after that period should be classed as results of and not necessarily a part of the disease, and the occurrence of which should always be viewed as avoidable.

Vaginal Section in Suppurative Diseases of the Pelvic Structures; Indications and Technic.—Dr. E. E. Montgomery read a paper on this subject, in which he said the operation is not suitable for every case and will be chosen or rejected largely according to the experience and predilection of the individual operator. If he were obliged to choose a procedure which should be applied to every case, he would be compelled to accept the abdominal rather than the vaginal. Where there is a large collection in the pelvis, however, the vaginal route affords a more ready method for its evacuation with less injury to the general health of the patient and affords ready drainage. The operation should not be chosen in cases of undilated vagina, nor where the suppurative collection is situated high in the abdomen and does not dip down into the pelvis, nor where it is confined to only one side of the pelvis. It should be the operation of election when the retro-uterine pouch is the seat of a large collection, whether this be secondary to tubal disease or result from a degeneration and infection of a pelvic hematoma. It should be the only procedure considered when the condition of the patient is so precarious that a severe operation is undesirable. The experienced vaginal operator would prefer it when both ovaries and tubes are so evidently destroyed that their retention would be a menace to the life and future health of the patient.

Drainage in Operations for Suppurative Disease of the Pelvic Organs.—Dr. Baldy said in few exceptional instances, there is no other condition in the pelvis than suppurative disease, in which drainage is a proper procedure. Drainage in non-suppurative disease is an admission that the surgeon has not yet learned the value and use of the needle and catgut. In cases of ovarian abscess, pus tubes, and abscess of the

uterine wall (where it is justifiable to remove the uterus), in but rare instances, is drainage necessary. The one thing which should most often decide the surgeon to drain is the acuteness and virulence of the infection. An acute suppuration of the pelvic organs, either gonorrheal or puerperal, should be allowed to advance as far into the subacute stage as is consistent with the safety of the patient before an operation is performed. When in doubt the decision is generally against drainage. Suppurative disease of the pelvis itself, such as puerperal abscess free in the pelvic cavity (intra-peritoneal), suppuration in the pelvic connective tissue (broad ligaments, etc.) and pus in the pelvis as the result of bone or joint necrosis will always demand drainage, and the sooner it is established the better. In the first two conditions vaginal drainage is the safest and best. The writer does not drain more than possibly five per cent. of his cases. If drainage is not instituted in a given case, other causes being excluded, the knowledge that the case was one for possible drainage, the temperature and pulse, together with the vaginal examination, will render the nature of the trouble perfectly apparent, and will demand the opening of the vaginal cul-de-sac into the peritoneal cavity, irrigation and the introduction of a drainage tube. In his judgment the risks of pelvic surgery are reduced to a minimum and the best interests of the patient subserved, by dispensing with the drainage tube whenever possible, especially when it is true that where an error of judgment has been committed the mistake is so readily and safely corrected.

Dr. Richard C. Norris said that the experience of all men who deal with pelvic diseases is to find a certain proportion of appendiceal inflammations associated with inflammatory conditions of the tubes and ovaries. A recent article which no doubt most of those present had read in which expert bacteriological and pathological examinations were made of the appendices removed at the time the pelvic inflammatory conditions were dealt with, shows a strikingly large proportion of associated lesions. Kelly's recent inquiry shows that most all surgeons remove even the slightly affected appendix when the abdomen is opened for any other cause, and that many surgeons justify the removal of the normal appendix when the abdomen has been opened for other affections. These opinions and practice make a distinct advance in the gynecologist's conservative labors. His own experience with pus due to bone lesion is a limited one. He had records of two cases in which the traumatism of labor or the use of instruments, followed by infection, has produced bone lesions with production of pus giving rise to symptoms requiring the application of the principles of drainage. As to vaginal section and drainage after celiotomy, he believed the majority of men who are doing active, aggressive work are pretty much of the same opinion. The limitations of both are growing more and more narrow. Dr. Montgomery pointed out the indications for vaginal section in pelvic inflammatory conditions in women. The keynote of the whole problem is accurate diagnosis. Large collections in the desperately ill, all agree should be approached through the vagina. If one could in all cases of chronic lesions make an accurate diagnosis of visceral adhesions and disseminated foci of suppuration, the selection of the route for operation would be clearly indicated. The most enthusiastic vaginal operator will sometimes go far afield in his diagnosis even after the vaginal section has been completed. Vaginal incision certainly can produce drainage and will relieve large collections of pus, and there are few practising gynecologists who would not select such a route for patients desperately ill. Localized collections of pus in the

tubes, ovaries and intestines may be beyond our reach by the vaginal route; there may be serious lesions of the bowel or appendiceal complications in which cases we work blindly, and he was far from convinced that vaginal section can accomplish such complete work, or that convalescence is quicker than after operation through the abdominal route. Drainage may be more readily secured than by the old method of the glass tube, and yet he thought there were once in a while undetached pockets of pus, and a stormy convalescence which would have been avoided by operation through the abdominal route. When there is doubt as to the exact lesions the abdominal route offers greater advantages. A man may pride himself upon his diagnostic power in determining the exact character of the lesions in the pelvic cavity, but he will sometimes err. The necessity for drainage is often a question of technic. Many may not employ drainage when others not so skillful in their technic would risk the patient's life without drainage in some cases. As a man advances in his operative career he gains an experience and skill which teach him to deal deftly with raw and bleeding surfaces. He learns to make hemostasis complete, to prevent or repair visceral lesions, to avoid spreading infection, and thus his drainage tube or gauze is less frequently used, and the convalescence of patients is more satisfactory. The wide application of hysterectomy in these old pelvic inflammatory cases shows this principle. Formerly glass tube after glass tube was used. Now when we resect the uterus and ligate the blood vessels in the broad ligaments hemostasis is perfect and there is no pool of blood to be a nidus for germs, and drainage is not required. As our technic has changed, so have our habits of practice as to drainage. He believed it is a growing practice among operators to drain through the vaginal vault when drainage is necessary. The bacteriologist at the operating table can tell the surgeon the kind of infection present, but he cannot tell the degree of virulence of the germ he finds under his lens, nor is the power of resistance of the patient known to a certainty. The surgeon, therefore, cannot always, by such examination determine whether or not drainage must be used. Dr. Penrose and Dr. Baldy working side by side in the same hospital put this method to the practice test. The former utilized it, the latter disregarded it, and the differences in mortality and morbidity showed that those bacteriological tests had little or no practical value. One's own experience, judgment and skill are more to be relied upon. Doubtless errors cannot always be avoided. When the patient's illness and the local lesions indicate virulent infection with the coli communis or streptococcus drainage will often be necessary. The question of opening the vaginal cul-de-sac for primary or secondary drainage is one which comes to every operator. He preferred to drain into the vagina when drainage is employed. Once in a while a collection of blood or serum remains and is infected. Incision of the cul-de-sac, several days' washing out and packing will be followed by prompt convalescence. He had done that several times, and thought men who have departed from the routine drainage of former years have rescued patients by this secondary drainage when there was inability to determine at the time of operation that primary drainage was necessary.

To recapitulate: It was his conviction that every one drained less than formerly. When drainage is indicated the vaginal route used freely accomplishes the most. The glass drainage tube in pelvic surgery has rapidly disappeared and probably will soon be a curiosity. Men, who operate by choice through the vagina accomplish excellent results in a great many cases be-

cause of their skill, their judgment, and their accurate diagnosis. Their failures would, he believed, be less with the same skill and judgment working through an abdominal incision.

The recent studies of the frequent association of the appendix with pelvic inflammations and the necessity for surgical attention to even insignificant lesions of the former are a distinct advance in our work. While some operators may consider the removal of the appendix, under the conditions named, aggressive or even meddlesome surgery, he believed one will finally learn that it is conservative work, the credit for which will belong to gynecology.

Dr. George G. Ross said that there seems to be a radical difference in opinion as to the value of drainage. In pus of appendiceal origin there was an entirely different problem to solve. If there is pus in the pelvis due to appendicitis the question of whether or not we will drain has been decided before the surgeon opens the abdomen. If the patient's general condition permits, thorough drainage, a search for and removal of the appendix are wise things to do. That the appendix can be removed in the majority of acute attacks of appendicitis associated with abscess formation has been demonstrated conclusively. Search for the organ will often reveal a secondary collection which would otherwise have been overlooked. Another reason why the appendix should be removed is that when plastered down against the posterior wall of the right iliac fossa its anterior surface forms part of the abscess wall. The posterior portion is in the same inflammatory condition as the anterior, and from its contact with the post-peritoneal lymphatics there is a direct communication with the general lymphatic system, which not infrequently costs the patient's life. The great point to be made in this question of pelvic suppuration is whether the suppuration is due to appendicitis or to disease of the adnexa. The dissimilarity of the infections of the two diseases is a valuable lesson pointed out tonight, for on the one hand we encounter pus of a low grade of virulence while in the case of the appendiceal infections we have to deal with pus whose destructive possibilities are as great as any met with in the human organism.

(To be continued.)

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held December 4, 1902.

The President, Robert F. Weir, M.D., in the Chair.

On the Need of Radical Reform in the Teaching of Medicine to Senior Students.—By Dr. William Osler, of Baltimore. (See this issue p. 49.)

Professor H. L. Burrell, of Harvard University, said that educational reform, during these past 20 years, has been gradually increasing in vigor, until it has become an imperative duty to consider its demands and needs by all who have to do with education. The true method or methods of acquiring and imparting knowledge have not been determined, from the fact that no one system has been tried a sufficient length of time to test it thoroughly.

Fröbel, with his kindergarten method, made a deep impression upon educators. The preparatory schools of this and other countries are at present experimental stations. There are certain currents of opinion which seem to indicate that a few principles have been established; one is, as has been said by President Eliot, "train men for power." Another principle is to allow the student to acquire knowledge rather than to receive information. Accepting the men who have devoted

their lives to the problems of education are unable to agree as to the best method of education, it is easy to understand why medical education halts as to its methods of improvement. The group of men who are assembled in Baltimore at the Johns Hopkins Medical School, made up of men of distinguished attainments as individual thinkers, have been fortunate in having conditions which they could largely control in the way of small classes. I think it may be said that the whole country has watched with the keenest interest the development of education at the Johns Hopkins Medical School, and while listening and seeking for the truth have yet recognized that the environment of their own school, hospital and city must, of necessity, be considered in adopting improved methods of instruction.

I beg to present for your consideration three ways in which the teaching of medicine to senior students can be improved. The first method is to have a curriculum which shall consist of minimum required work and maximum elective opportunity. The minimum required work should consist of the absolutely essential knowledge of all fundamental studies necessary to make a well-informed physician, whether the student is to be a practitioner of medicine or one who is to devote himself to the science of medicine. The maximum elective should afford to students, after they have mastered the fundamental studies, the opportunity to acquire knowledge in any direction they may elect.

The course of study in a medical school, I believe, should cover a period of four years, three years to be devoted to the required, and one year to the elective, studies.

The plan which was adopted at the Harvard Medical School last June may be of interest to you: (1) The fourth year to be elective without any restrictions; (2) the total number of hours required of each student to be one thousand; (3) certain courses to be recommended as fitting a student to become (a) a general practitioner, (b) a specialist in, or teacher of, any department of medicine; (4) an advisory committee to be appointed with whom the students may consult concerning the selection of studies; (5) in general the forenoon hours to be devoted to practical work in hospitals and laboratories, and the afternoon hours to the lecture room and laboratories. The first year and a half is to be devoted to the study of anatomy, histology, physiology, physiological and pathological chemistry, pathology and bacteriology. The second year and a half, completing the three years, is to be devoted to medicine, surgery, obstetrics, hygiene, pharmacology, dermatology, gynecology, pediatrics, neurology, syphilis, ophthalmology, otology, laryngology, legal medicine and psychiatry. During these three years the student is to devote himself to these studies at their minimum. During the fourth year he may devote his one thousand hours of time to such electives as he may select.

The second method, which I hope will be adopted by the Harvard Medical School, is to require all students, during the fourth year, to serve as clinical clerks and surgical dressers in the wards and out-patient departments of a hospital. The service should consist of four months' service as clinical clerk in the medical out-patient department, two months' service as clinical clerk in a medical ward; two months' work as a dresser in the surgical out-patient department, two months' work as surgical dresser in the surgical wards, two months' work as assistant in some elected special out-patient department.

This plan would take six months of the student's whole time and six months of his mornings or afternoons. It would necessitate the abolishment of the third year vacation for a certain number of students,

and although this may, at first sight, seem a hardship to the students, when it is considered that they are in a technical school acquiring the knowledge that is going to fit them to gain a livelihood, it is not too much to expect that some of the students should be willing to work during one summer of their four years' course. This plan would be simple to carry into effect if the school has a hospital and, I believe, can be made practical even if the school does not have a hospital.

To make this plan effective it would be necessary that the three parties concerned, the student, the hospital and the school, should each find it advantageous. It would be of advantage to the student for he would gain that practical experience that he so keenly desires. At the present time he gains more or less of this experience by obtaining through personal solicitation, an appointment as an assistant in some out-patient department; occasionally he is allowed to enter the wards of a hospital. He cuts the regular exercises of the school.

It would be of advantage to the board of government of a hospital for assistants would come to them from a responsible body, with regularity, having been trained for their duties. The boards of government of certain hospitals object to students entering the wards of their hospitals. If it can be shown them that the patients are more efficiently treated, that the number of house officers necessary for properly doing the work can be diminished and that trained men can take their places, I believe that trustees will recognize the desirability and the economy of this plan. Certain members of the staffs of hospitals, not connected with medical schools, may object to this plan, for they would feel that they were giving instruction to students. Not at all. They are simply allowing students to acquire information. The possibility of obstruction on the part of certain members of hospital staffs should lead the board of government of a medical school to deal directly with the board of government of the hospital, for this plan would avoid petty considerations. Should this plan be adopted in New York City and should any hospital refuse to take medical students, it would quickly place itself in a position where it could not have the assistance it now requires to care for its patients.

From the school's standpoint the advantages are manifest. It would in an organized manner provide opportunity for students to acquire practical knowledge. The mornings or afternoons of the fourth year could be devoted to this practical work. The students would be required to come promptly and to remain until the work was done. To make this plan effective the students should be under medical and surgical tutors, whose duty should be to see that the agreement on the part of the school to furnish assistants to the hospital is fulfilled; to encourage the students by counsel and advice to get benefit from the cases with which they are brought in contact; for example, if a student were serving two months in the surgical out-patient department and were coming in contact with a number of fractures of the elbow-joint, he should be at liberty to confer with the tutor at specified times, who should stimulate him to acquire a competent knowledge of fractures of the elbow-joint, from the literature of the subject, from museum specimens and from such other sources as might be desirable. An important function of the tutor also would be to encourage the student to carry out a line of research work in clinical subjects, not so much for the value that would come from this research work to the science of medicine, as the habit acquired by the student to pursue an individual subject until it is completed. The remainder of the

time in the fourth year should be devoted to laboratories and lectures.

This plan is practical. The three parties concerned, student, hospital and school, would all be benefited. The function of hospitals would be better carried out in that the patients would be better cared for, for there would be a greater number of assistants and greater care of the individual patient; the plan would also be an economy, for it would diminish the number of house officers. The length of service of house officers, who should all be graduates, under this plan might be readily shortened to a year, for the house officer would come to the hospital with greater experience.

The third way to improve teaching is to recognize clearly the scope and character of lectures and section work. The professors in a medical school should direct the work done in their departments. The section work should be given to small classes. The more nearly personal the instruction is, the better. It should not be a clinical lecture nor a clinical demonstration, but should be the drill of the individual student in the fundamental studies; for example, drill in taking histories, in making physical diagnoses, in establishing the treatment of patients. The lecture, on the other hand, should be given to large classes; it should, first, present in a concentrated form, the experience of mature teachers; second, it should present the advanced knowledge on selected special subjects. The lecture's great value, if properly given, is to serve as an inspiration to students to do better work.

Professor MacFayen, of Toronto University, said that he always tried to impress both the student and the public with the importance of the hospital. The function of the hospital was threefold: (1) To care for the public at large; (2) to train nurses to care for people outside, who are unable to go to the hospitals; (3) to train medical students to care not only for the rich but for the poor as well. At Toronto the utmost freedom was given the student to enter the hospitals, and they prepared the work for the clinics. It was not difficult to give this hospital work to small classes, but when classes numbered upwards of a hundred or more, it became quite difficult. He did not consider the lecture as important as clinical work, and said that more were given than were necessary in order to comply with the law requiring students to attend a certain number. To know a disease abstractly is of little practical use, we want to know what it is in the concrete.

Dr. Edward G. Janeway said that as conditions were different at Johns Hopkins' things could be done there which were not feasible here, though Dr. Osler's methods were approximated. In the college with which he was connected no didactic lectures were given during the fourth year. The students were given laboratory work, section work and dispensary work instead. During the earlier years the place and purpose of lectures must be left, to a considerable extent, to the teacher. Students were not selected here as at Johns Hopkins' and it would not do to turn them loose in the hospitals. In regard to clinics he was not prepared to say that we should do away with them because we obtained material there to illustrate to students such cases as we could not otherwise obtain. He thought the time was not far distant when the hospitals of this city would become centers for the education of students far more than they have been in the past. As Dr. Osler had published his views in books he should be more lenient to those instructors who gave theirs by didactic lectures.

Dr. Walter B. James thought that the most important duty of the hospital was caring for the sick and

injured, and not even the ends of medical education should be allowed to interfere with this aim. He had watched the change that had taken place in New York City during the past 10 or 15 years in the extended collateral use of hospitals, and felt sure that the advantages offered were far greater than formerly. He thought there was material in the clinics of New York City to equip all the first rate medical colleges. Every teacher should be a law unto himself. If a man did not believe in didactic lectures he should not give them. The question of how to use the hospitals depended largely upon the personality of the man. He felt that a thorough knowledge of medicine could be given a young man by regular teaching, by small sections in hospital wards, when not occupied with clinical classes. He thought that the amphitheater occupied an important part in medical education. In New York it had largely taken the place of didactic lectures; indeed, it was the most important single element in medical education. He believed in the four years medical curriculum, though that time was too short for a man to get more than an insight into medicine. The four years should be devoted to the entire field of medicine, including the specialties. One of our most important duties was to attempt to inspire our students with the wish to be good students, so that when they have graduated they can go on and study with good scientific sense.

Dr. W. G. Thompson said that he did not think that Dr. Osler need feel so discouraged because so many men failed to pass the United States Army board because the army did not attract the best class of men. The medical student of to-day had an enormous pressure of duties forced upon him; there was so much knowledge to be given the student that we should not spend so much time in teaching him methods. Dr. Thompson thought that study in the laboratory was often overdone. The enthusiasm of the specialist often leads him to demand more time of the student than he can well spare. Instruction in the practical branches should begin, to a slight extent, in the second year. He recommended recitations from text-books during the second year in order that the student might become familiar with the large vocabulary of medicine. We should keep in mind the general demands of the general practitioner; all are not designed to become distinguished specialists. Our object should be to turn out well rounded, well balanced, general practitioners. He agreed with Dr. Osler that didactic lectures could in part be abolished and bedside teaching substituted. However, he thought that many principles could be better learned by means of lectures. There was some danger in bedside instruction, for it was impossible to demonstrate in one case all the symptoms that might arise. The instructor can call attention to those symptoms which the patient has, and then tell the student what he has not. This can also be learned from recitations. If the class were large there was a tendency for the student to lose interest in a particular case, as the subject is apt to be presented with more or less confusion. Systematic work and systematic instruction is the only method that will enable the student to pass for internes, State boards, and other examinations.

Dr. E. B. Cragin told how for five years the College of Physicians and Surgeons had been trying to solve the problem as to how to bring the student to the bedside in obstetrics. The University had control of the Sloane Maternity, but it seemed that the patients objected to having students in the wards, for though the service might be very large in September, at about the time college opened in October, the patients seemed to go elsewhere. It might be different in special subjects. The question that confronted the Chair of Ob-

stetrics was not how to bring 100 students, but 200 students, before the patient in the hospital. The class was divided into sections of six men, and each section resided in the hospital for two weeks. During that time they see obstetrics morning, noon and all night at the bedside, and they hear about it for one year from the clinical instruction. The speaker said that he was in favor of the recitation plan. For three-quarters of a year as thorough ground work as possible was given by means of recitations, and for three-fourths of a year didactic and clinical instruction were given. They showed in the clinic what had been given in the didactic instruction which had preceded. During the fourth year nothing but practical work was given. They first gave the student the ground work and then as much practice as could be had in a class of two hundred with only eight months in which to work.

Dr. Ellsworth Eliot was of the opinion that in general surgery as in medicine as much knowledge as possible should be imparted by clinical methods. He did not think that we could impart all that was necessary in a clinical way. Text-books of such men as Dr. Osler had standardized general medicine, but there was no single text-book in surgery that imparted the ideas of those who were teaching surgery in the medical schools of New York City. The interesting facts of surgery are not contained in text-books. There was no doubt but that a lecture well delivered had an important function in teaching students the way to think and to approach the subject. It was impossible to cover the entire subject by didactic means. The didactic lecture is useful in keeping abreast with the changing views of the times, with which it is impossible for a text-book to keep pace. The recitation is a valuable means of giving instruction to the student, because you cannot tell how much of a subject he grasps at a general clinic. It is also an excellent plan to get the students together in the amphitheatre and talk over the results of the week's work. The essential thing that we aimed at was a thorough comprehension of the subject. Even where the student is admitted to the wards of a hospital he is often denied the privilege of general observation; in a case of fracture the instructor may point out the point of tenderness, etc., but the student did not note it himself. In a case of general peritonitis the student was rarely allowed to touch the abdomen. There are always a certain number of cases in which it is impossible for the student to follow the teacher, and in a recitation he tells what is of interest in this class of cases.

He thought that recitations gave us the only way to bring about an understanding of the subject; the instructor not only finds out what the student does, or does not know, but is enabled to explain what may not be comprehended by the student. A medical school should teach men that even when they receive their degree they are not finished products, but that they have a great deal still to learn, in fact, that they have just begun, and that they must continue to work hard if they hope to perfect themselves in the practice of their chosen profession.

Dr. William Osler, in closing the discussion, said, that if others had talked with the Army Medical Examiners as he had, they would think the title of his paper justifiable. The mental caliber of men could not be judged by the showings of the State Boards. State Boards were inequities; they had no idea of a practical medical examination. He thought the medical student should have the greatest facilities afforded him during the third and fourth year in the use of materials in dispensaries and hospitals. He thought there should be a closer contact between the patient and the medical student.